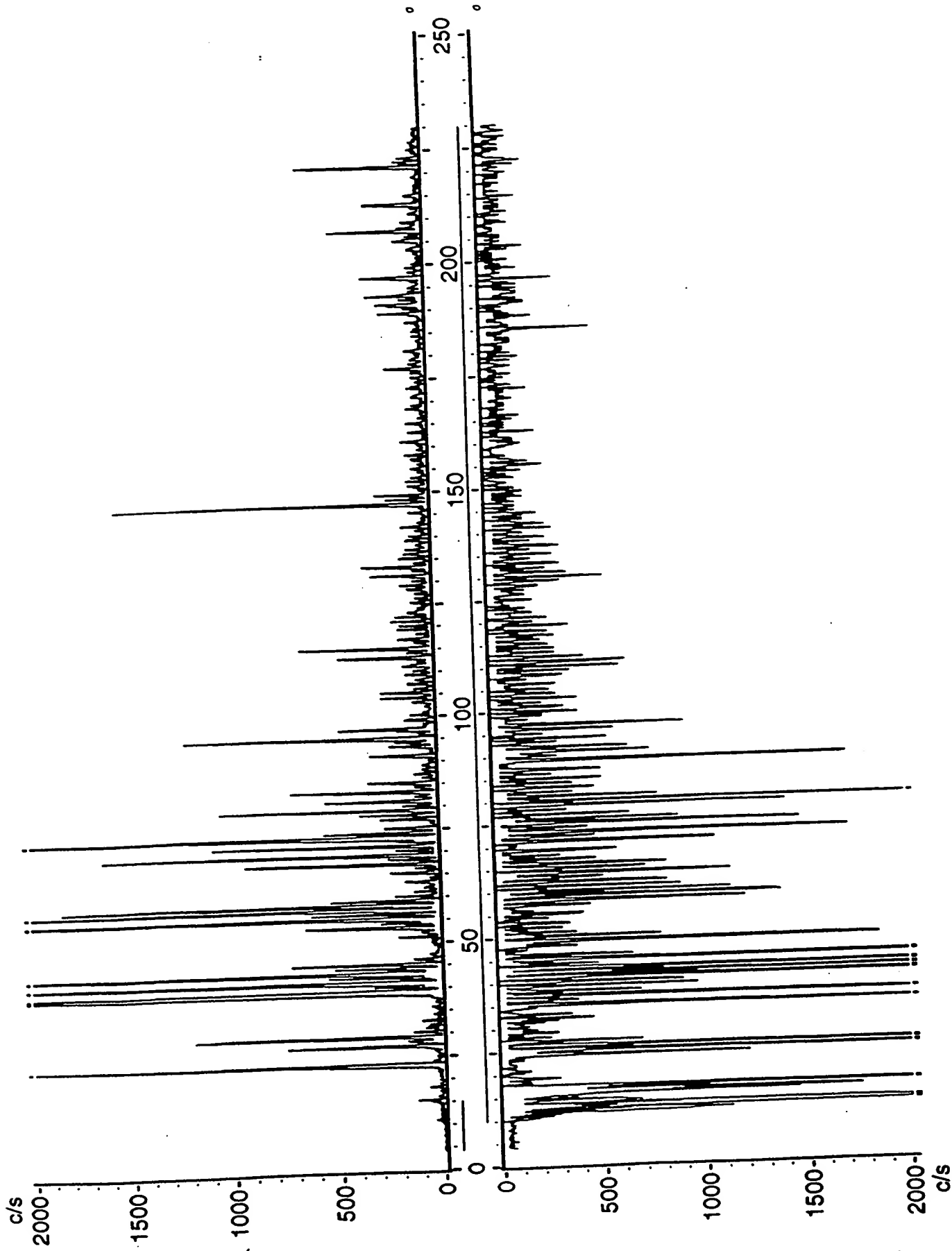


**Jacox, M. G., Watts, K. D., "INEL XPS Report", Idaho  
National Engineering Laboratory, EG&G Idaho, Inc.,  
Idaho Falls, Idaho, 83415, November 1993**

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All Data Displayed (No Peak Plotting)



C:\MASSEMOODATA\111693A.DAT

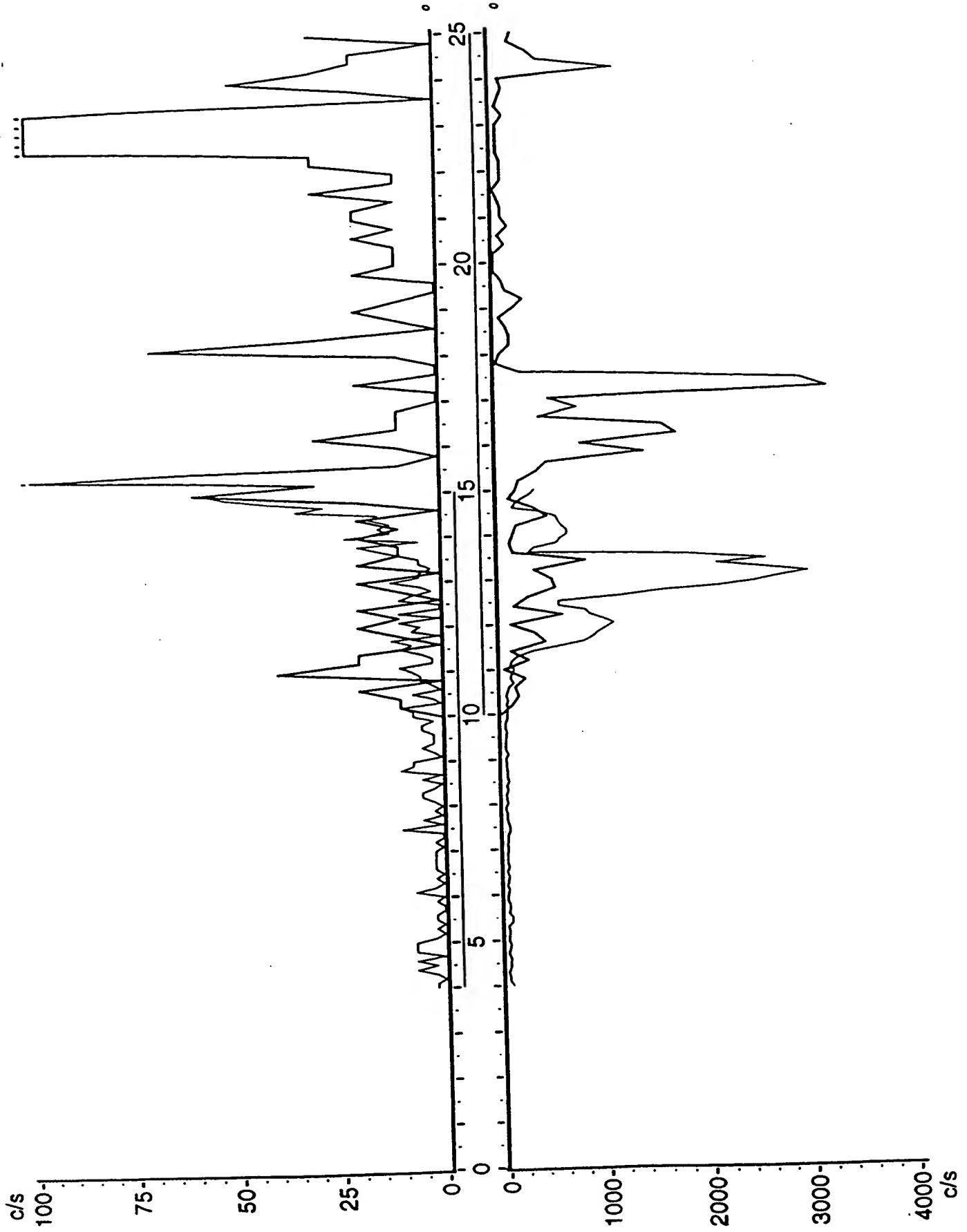
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08:57:30 11/18/1993 08:37:39



Cursor

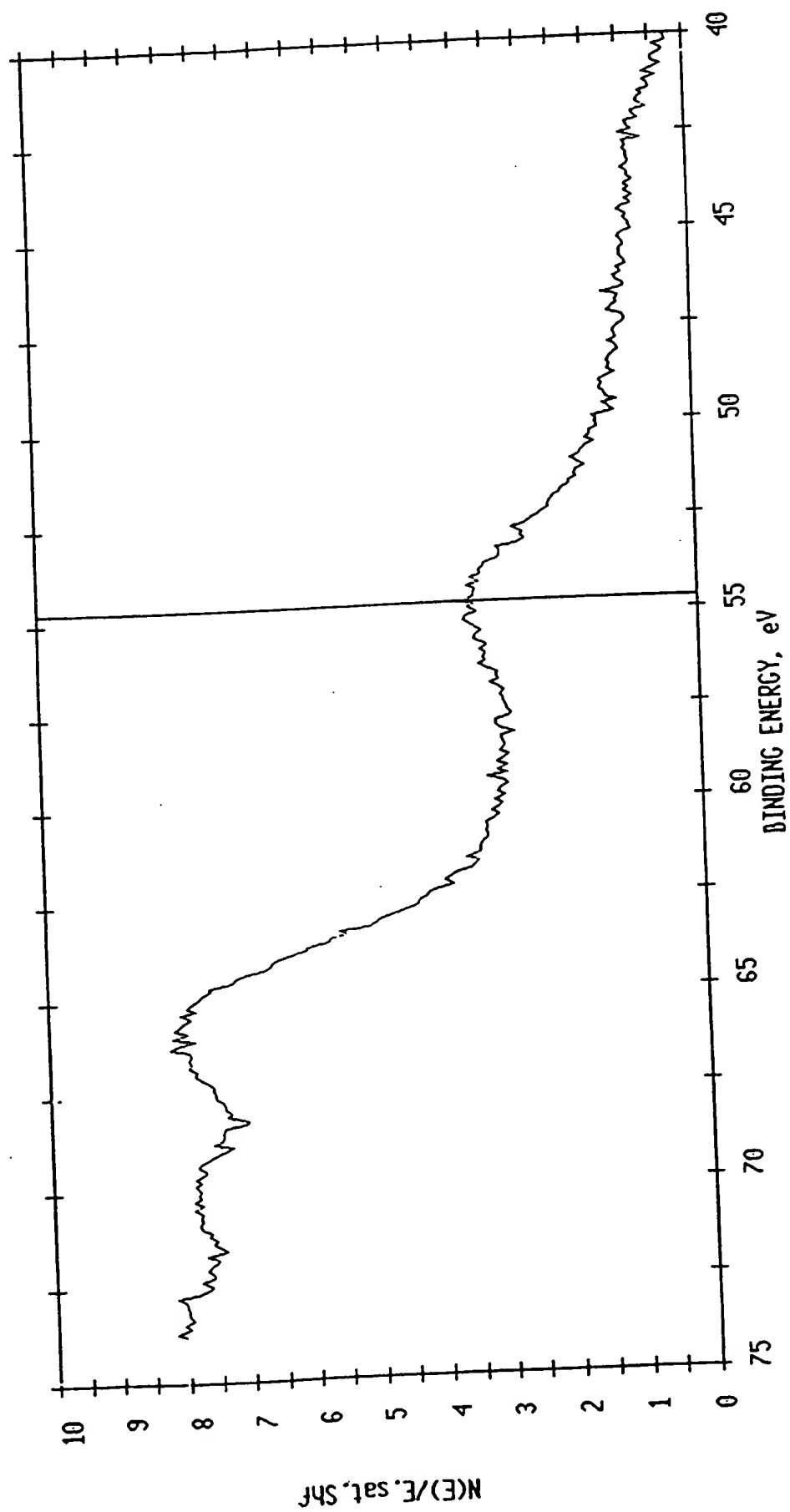
1445

28173 Counts/Sec

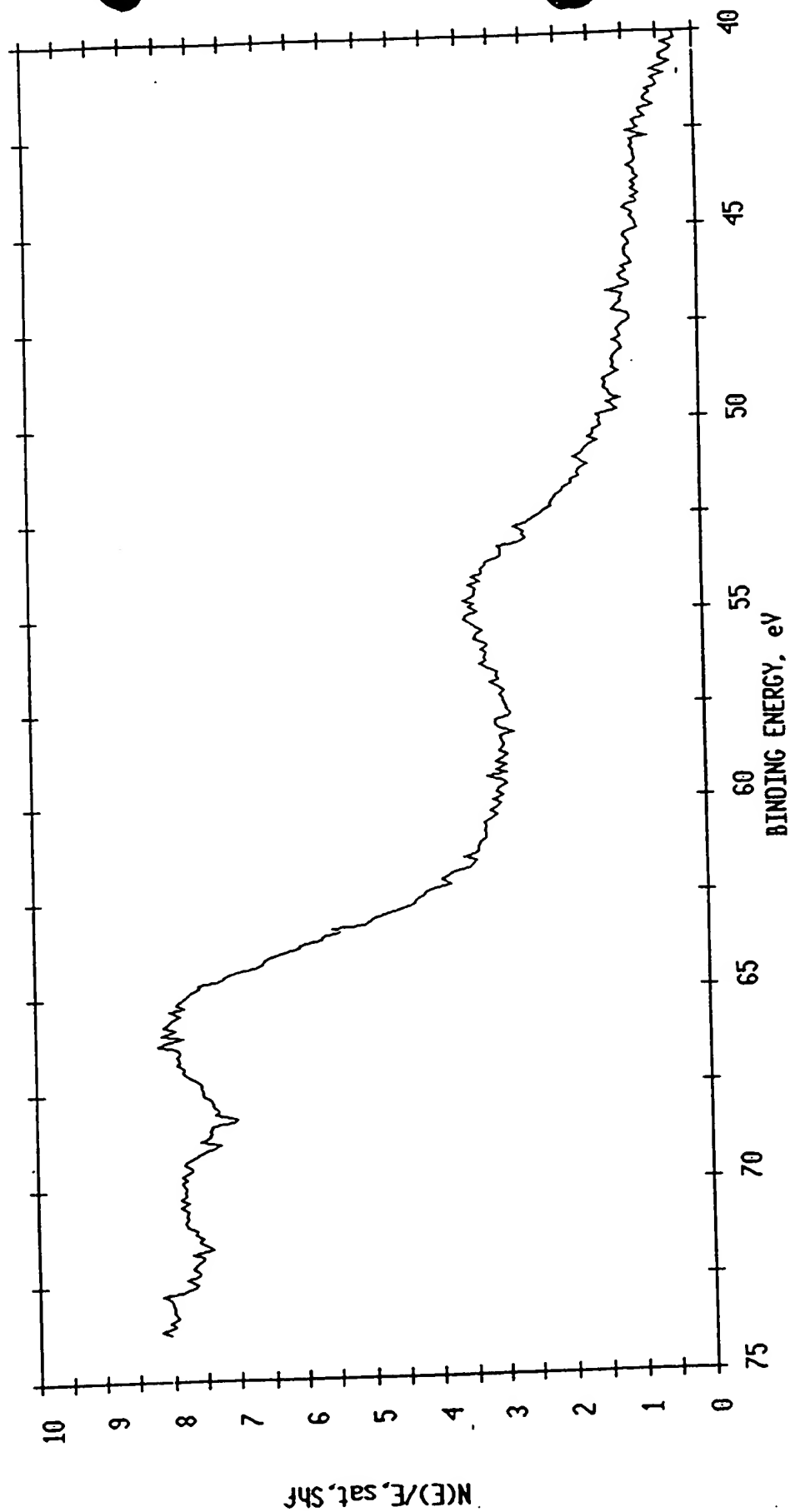
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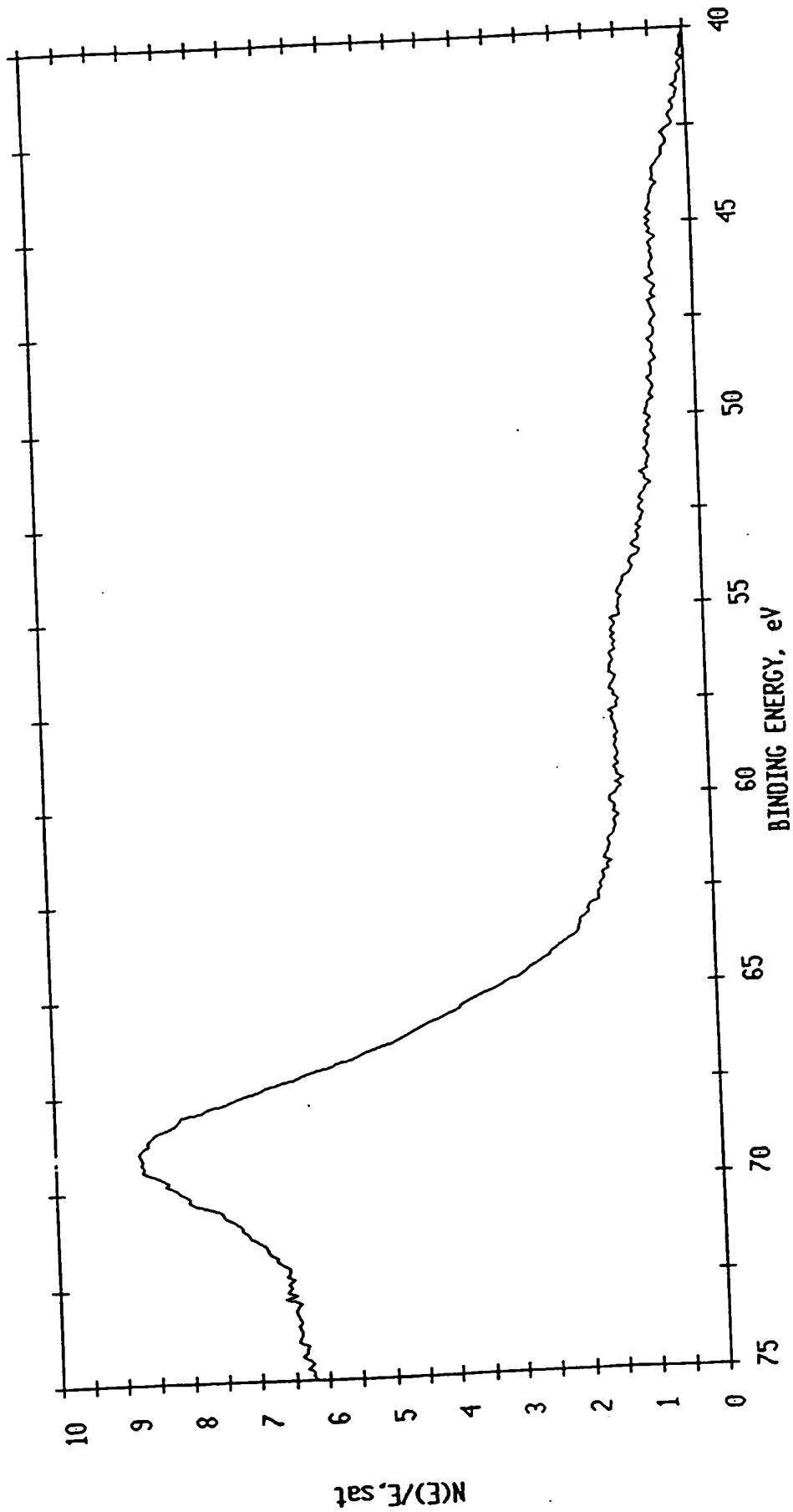
3 Energy (eV)



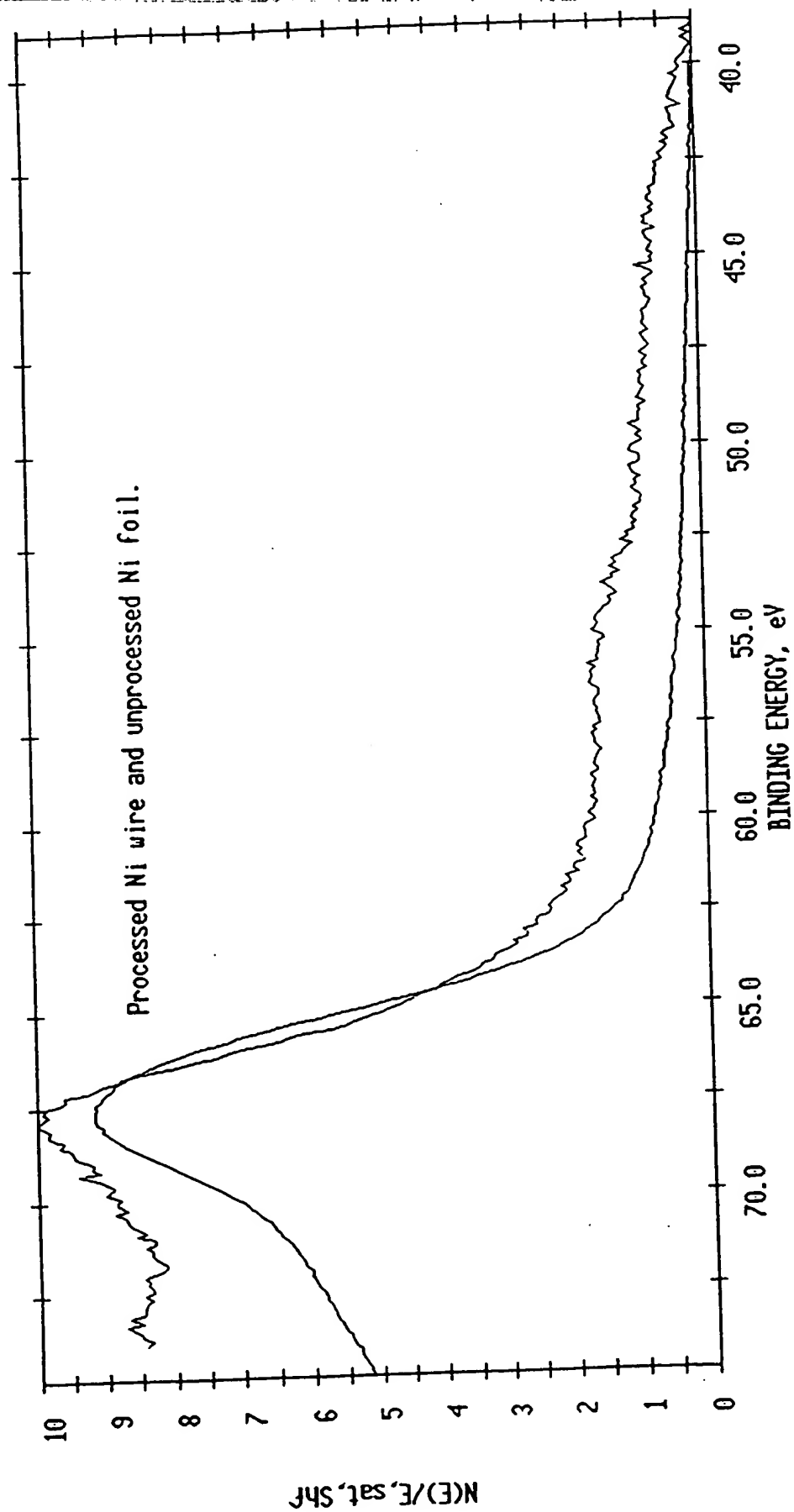
ESCA MULTIPLEX 11/24/93 EL= REG 2 ANGLE= 15 deg ACO TIME=114.08 min  
FILE: Nitest50 Ni wire treated overnight at IRC.  
SCALE FACTOR= 0.116 k c/s, OFFSET= 1.036 k c/s PASS ENERGY=143.050 eV Al 400 W



ESCA MULTIPLEX 11/22/93 EL= REG 2 ANGLE= 15 deg ACO TIME=96.53 min  
FILE: Nitest32 2nd Ni wire treated prior to IRC.  
SCALE FACTOR= 0.274 k c/s, OFFSET= 1.580 k c/s PASS ENERGY=143.050 eV Al 400 W

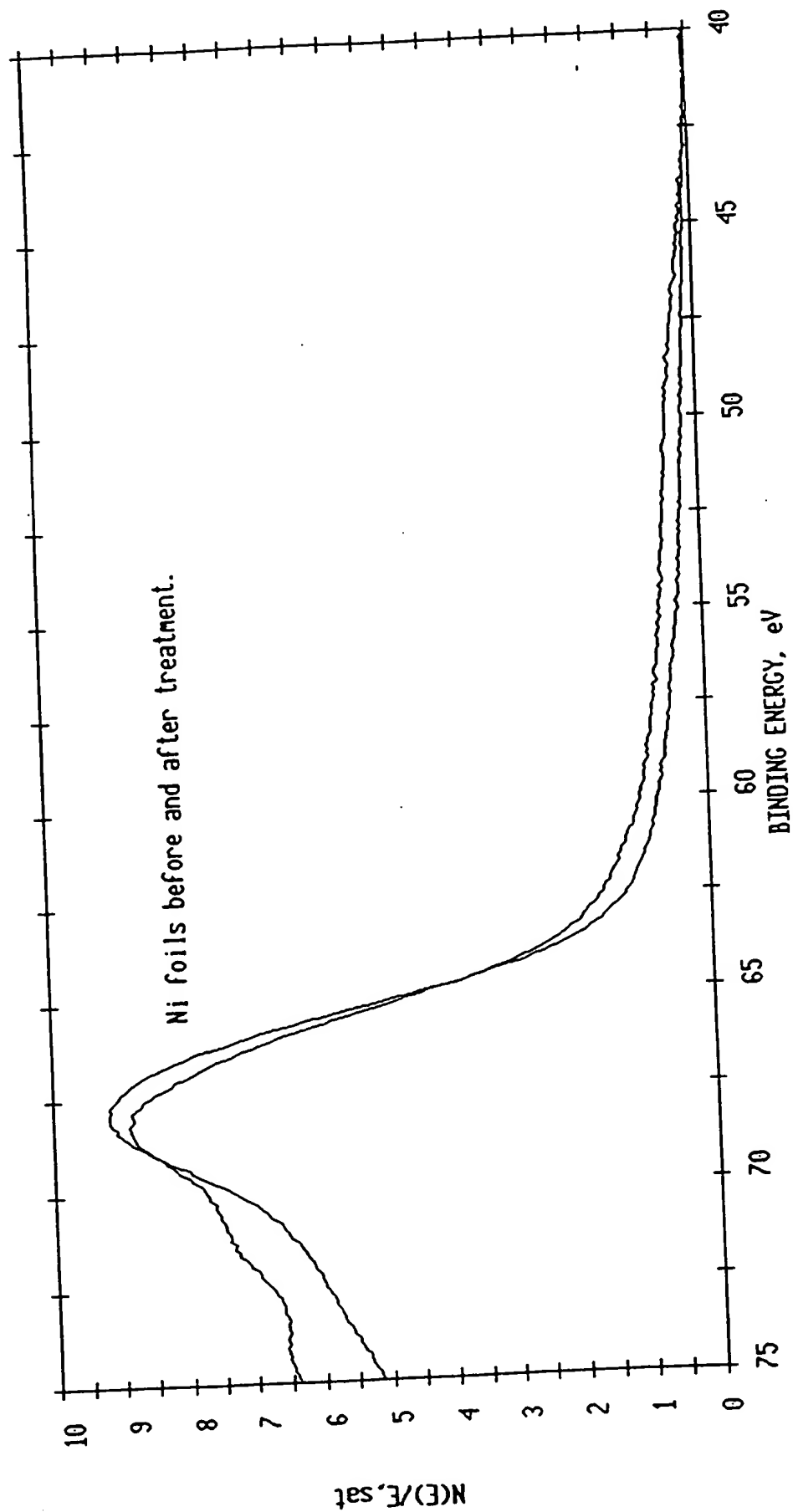


ESCA MULTIPLEX 11/18/93 EL= REG 2 ANGLE= 15 deg ACQ TIME=76.05 min  
FILE: Nitest22 Ni foil untreated. as received.  
SCALE FACTOR= 3.401 k c/s, OFFSET= 9.545 k c/s PASS ENERGY=143.050 eV Al 400 W





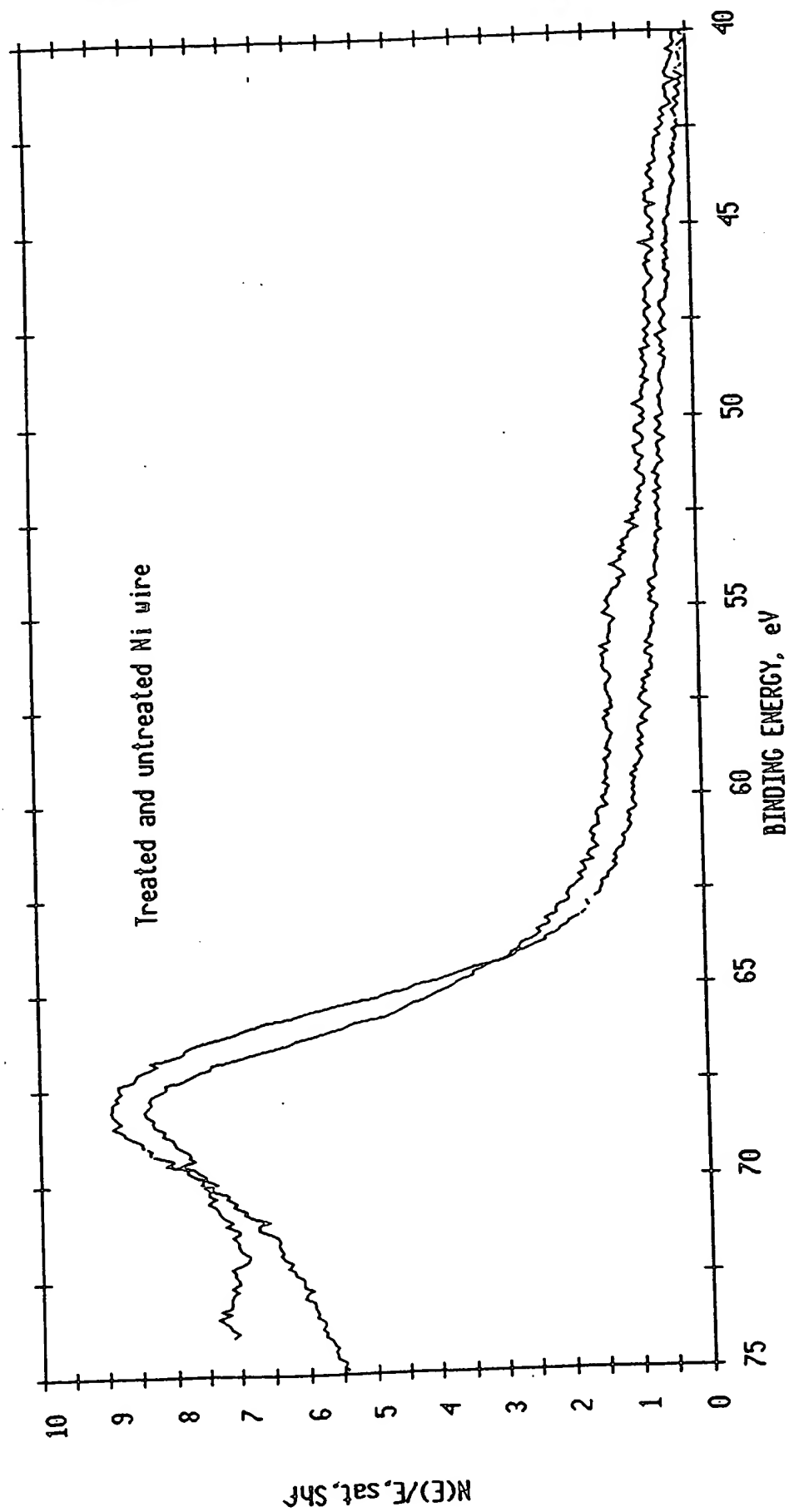
ESCA MULTIPLEX 11/19/93 EL= REG 2 ANGLE= 15 deg ACO TIME=84.83 min  
FILE: Nitest25 Ni foil treated in lab for 24 hr. As received.  
SCALE FACTOR= 1.920 k c/s, OFFSET= 8.515 k c/s PASS ENERGY=143.050 eV Al 400 W



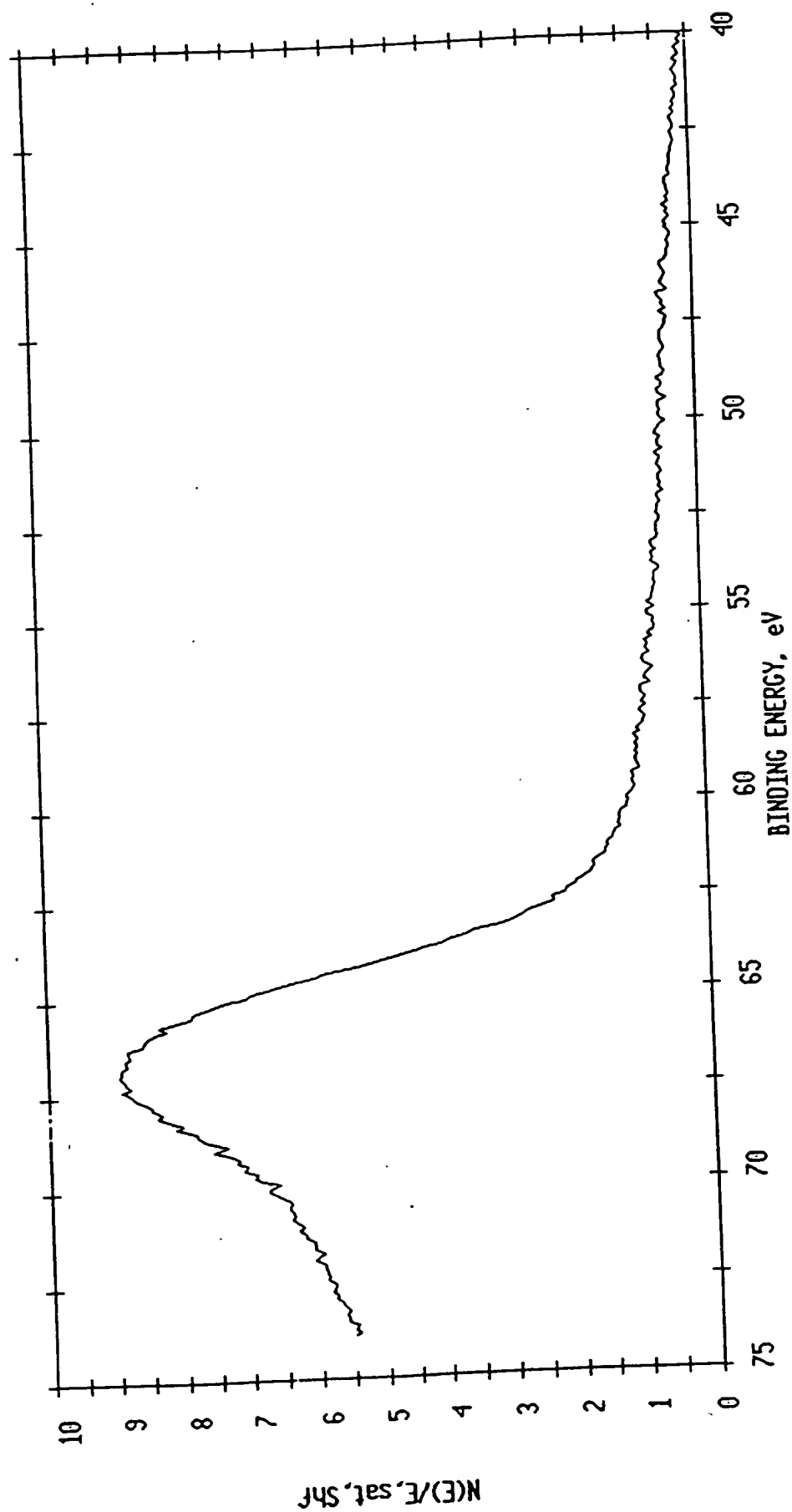
ESCA MULTIPLEX 11/18/93 EL= REG 2 ANGLE= 15 deg ACO TIME=67.28 min

FILE: Nitest20 Ni wire processed in lab. as received.

SCALE FACTOR= 0.331 k c/s, OFFSET= 2.436 k c/s PASS ENERGY=143.050 eV Al 400 W



ESCA MULTIPLEX 11/19/93 EL= REG 2 ANGLE= 15 deg ACO TIME=61.43 min  
FILE: Nitest27 Ni wire untreated (base line) using Al X-Ray's.  
SCALE FACTOR= 0.326 k c/s, OFFSET= 1.491 k c/s PASS ENERGY=143.050 eV Al 400 W



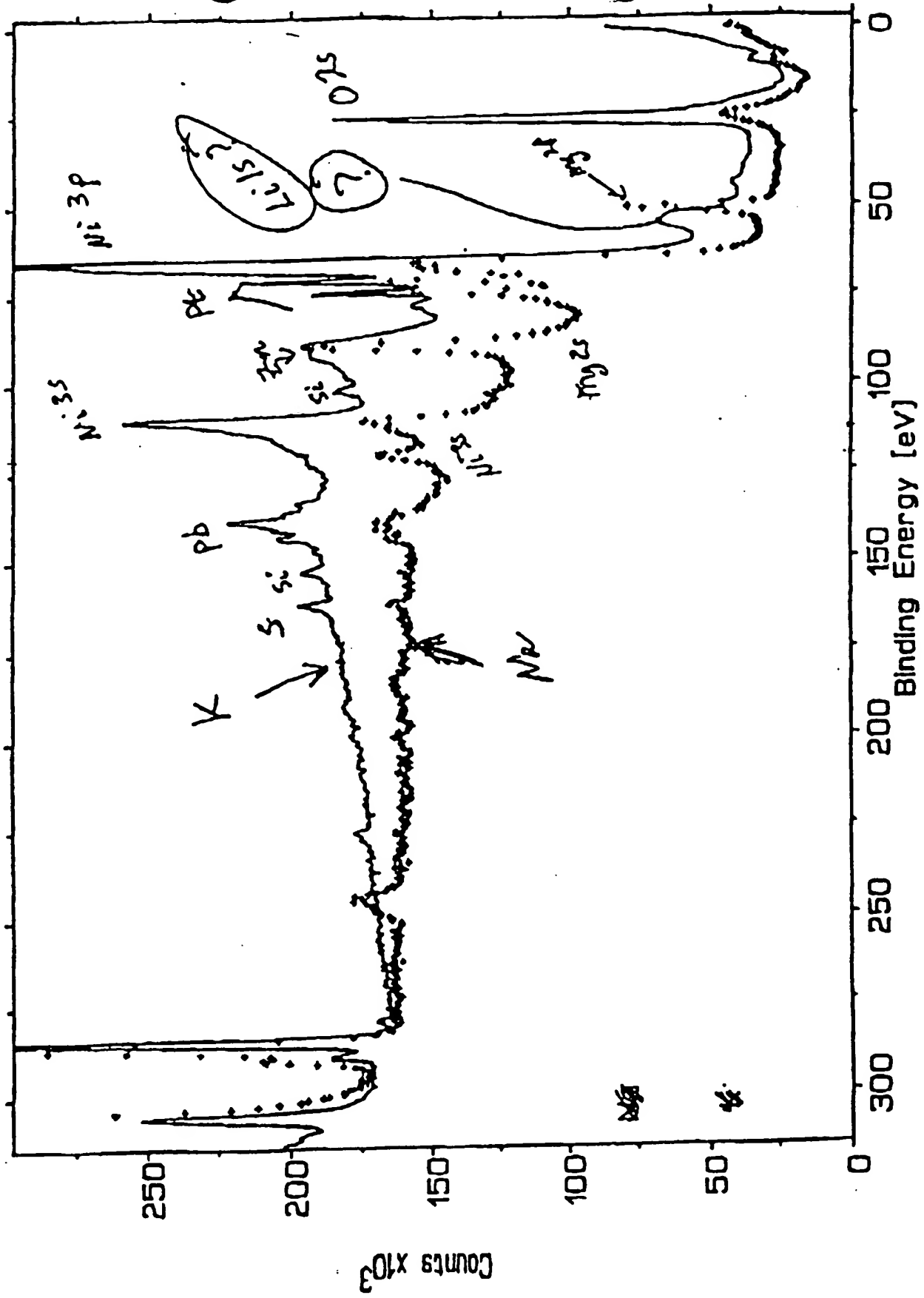


Figure 4 A

Several examples of different energy holes effecting shrinkage and the corresponding effective nuclear charges, total energy released, and final radii of the orbitspheres going from infinity to the final radius,  $a_0/(m + 1)$  are given in Table 20.1.

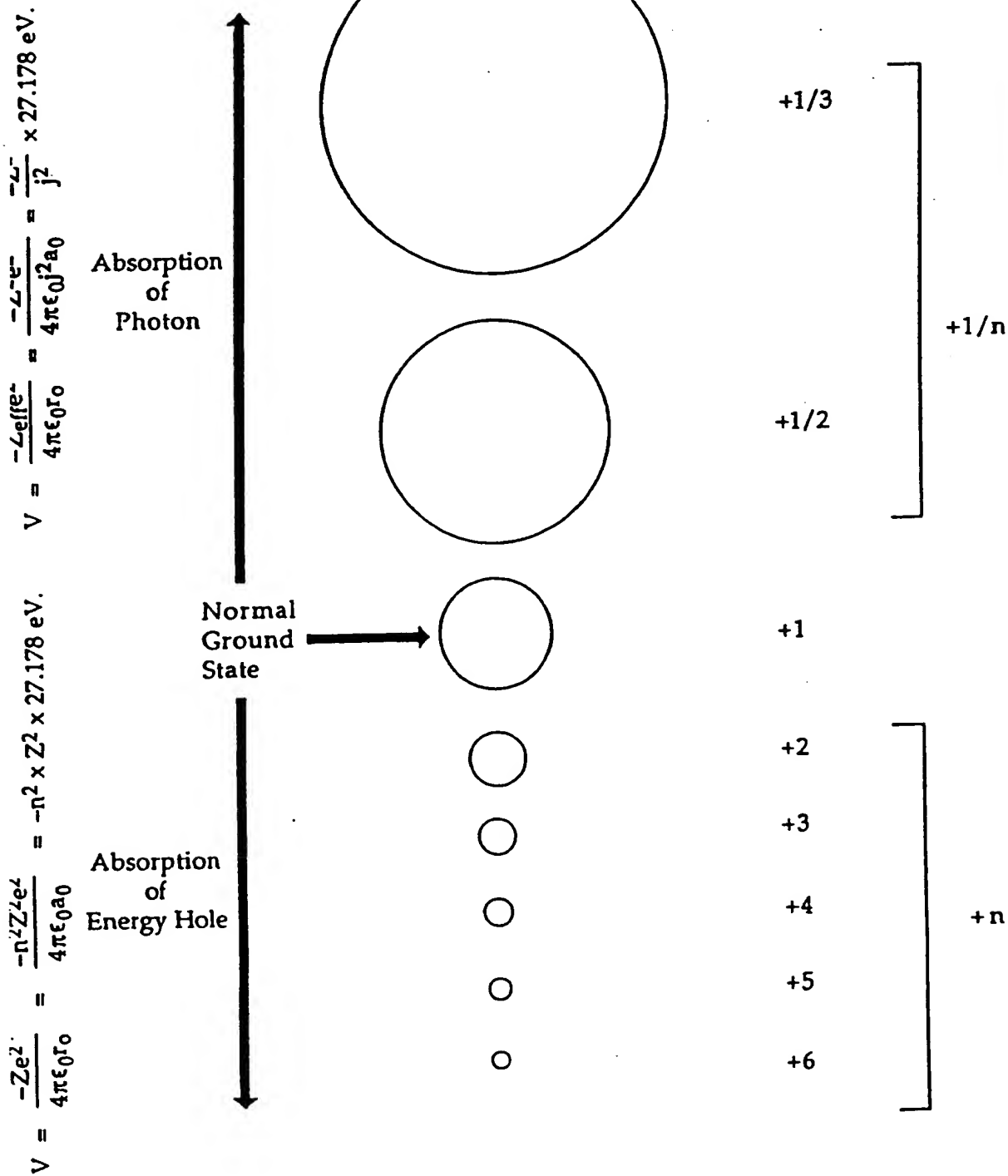
Table 20.1. Radii, energies, energy holes, and energy released for several states of hydrogen or deuterium.

n	R	V(eV)	T(eV)	Z <sub>eff</sub>	energy hole (eV)	total energy released (eV) r = ∞ to r = R
-	$a_0$	-27.2	13.6	1	-	13.6
1	$a_0/2$	-108.8	54.4	2	27.2	54.4
2	$a_0/3$	-244.9	122.4	3	54.4	122.4
3	$a_0/4$	-435.4	217.7	4	81.6	217.7
4	$a_0/5$	-680.2	340.1	5	108.8	340.1
5	$a_0/6$	-979.6	489.6	6	136.1	489.6
6	$a_0/7$	-1333.3	666.4	7	163.3	666.4
7	$a_0/8$	-1741.4	870.4	8	190.5	870.4
8	$a_0/9$	-2204.0	1101.6	9	217.7	1101.6
9	$a_0/10$	-2721.0	1360.5	10	244.9	1360.5

Energy released for any transition is given by  $\Delta E_{\text{final}} (\infty \text{ to } R) - \Delta E_{\text{initial}} (\infty \text{ to } R)$

The size of the electron orbitsphere as a function of potential energy is given in Figure 20.2.

Figure 20.2. Quantized sizes and energies of hydrogen and deuterium atoms.

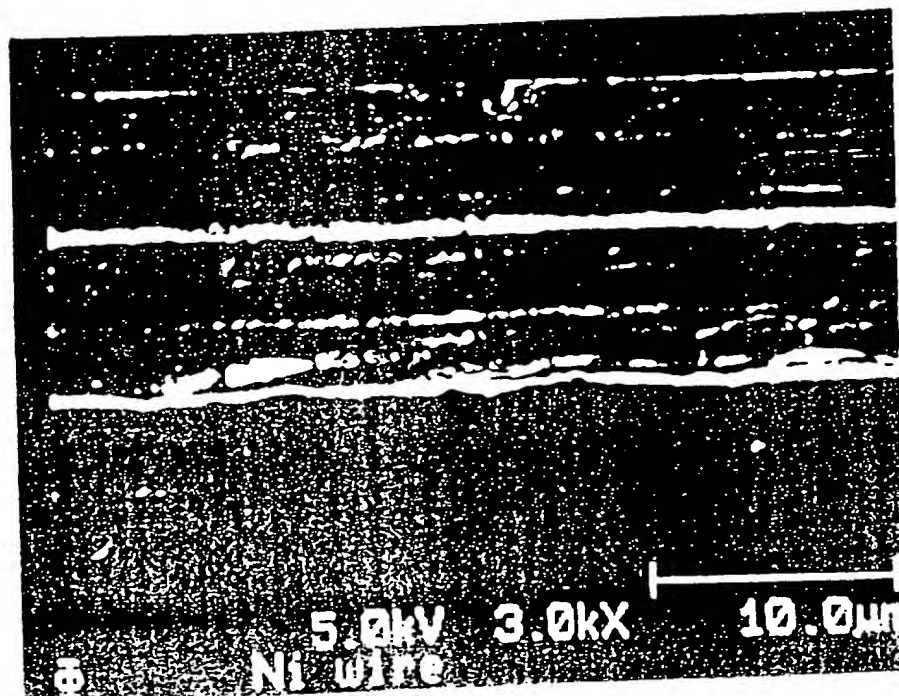
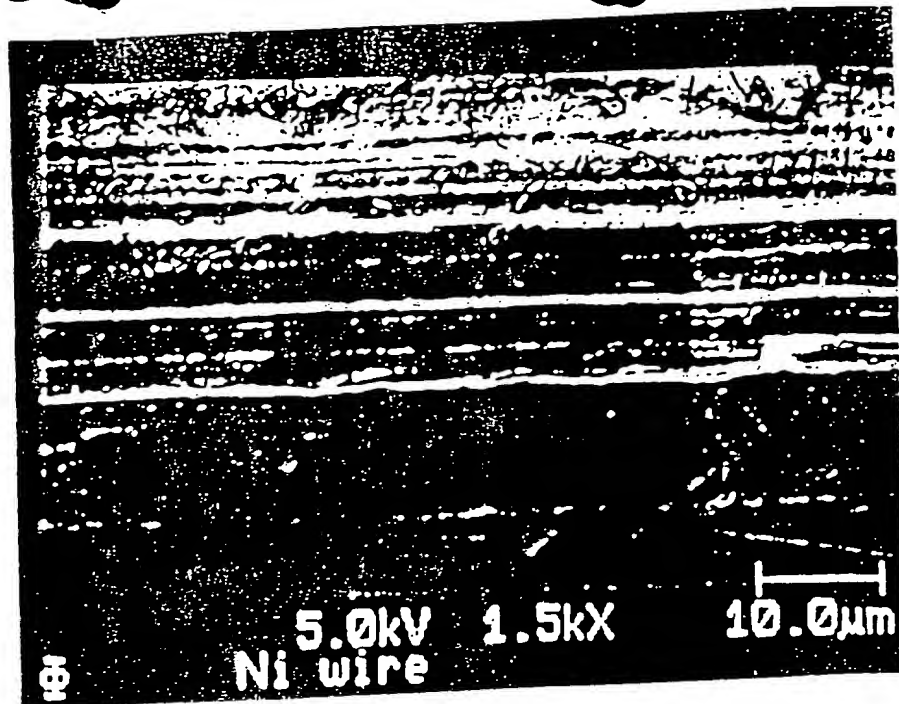


### CAF

The electric field  $E_n$ , where  $n$  is the principal quantum number (1.6). Thus smaller electric fields lead to smaller deuterium separation for example muon to electron orders of magnitude. 27.21 eV, separation internuclear process is

It is possible for protons, it is about 50% the nuclear Coulombic process.

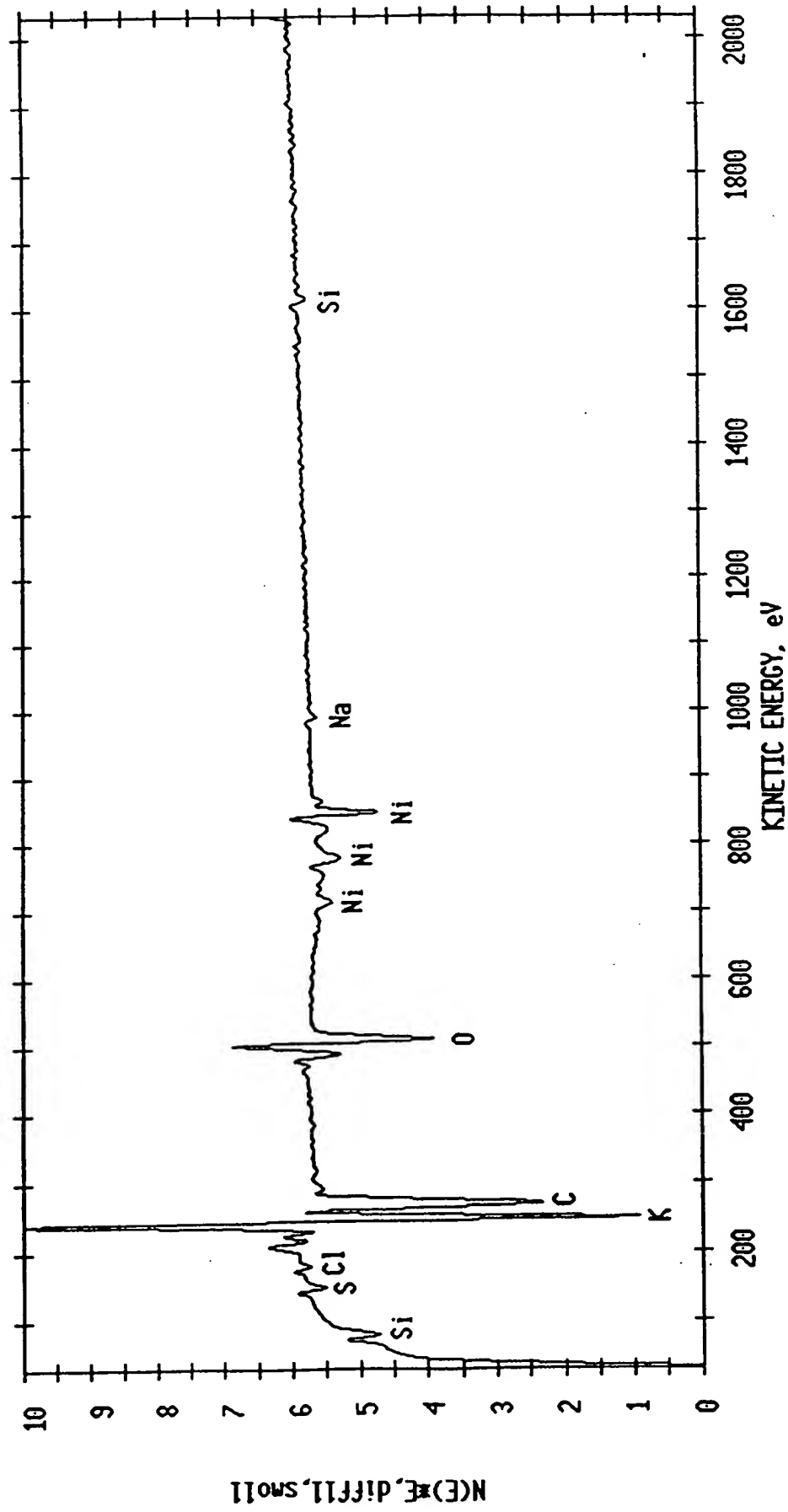
Hydrogen ground state proton. In photons



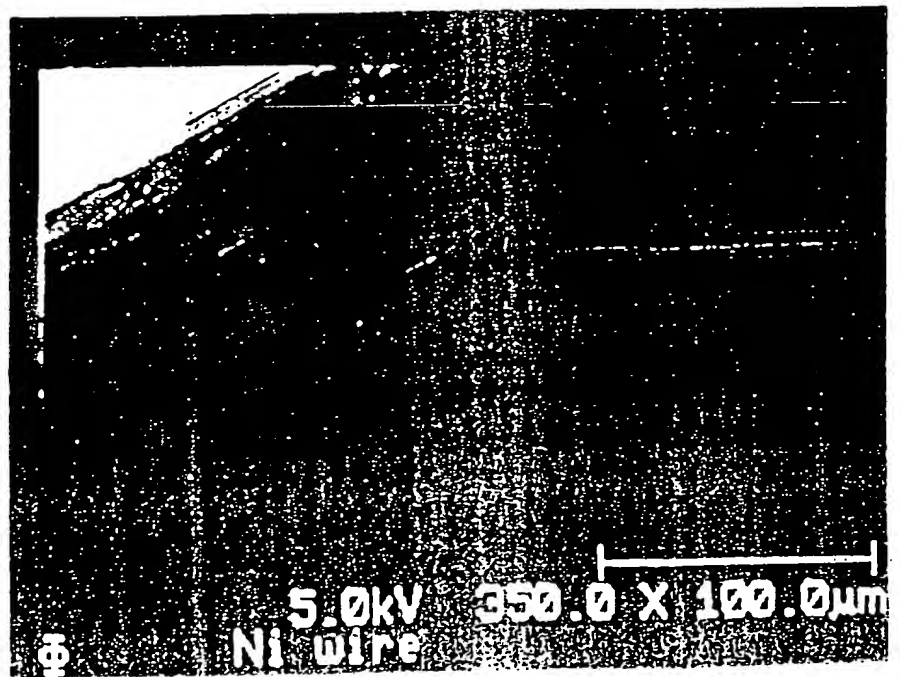
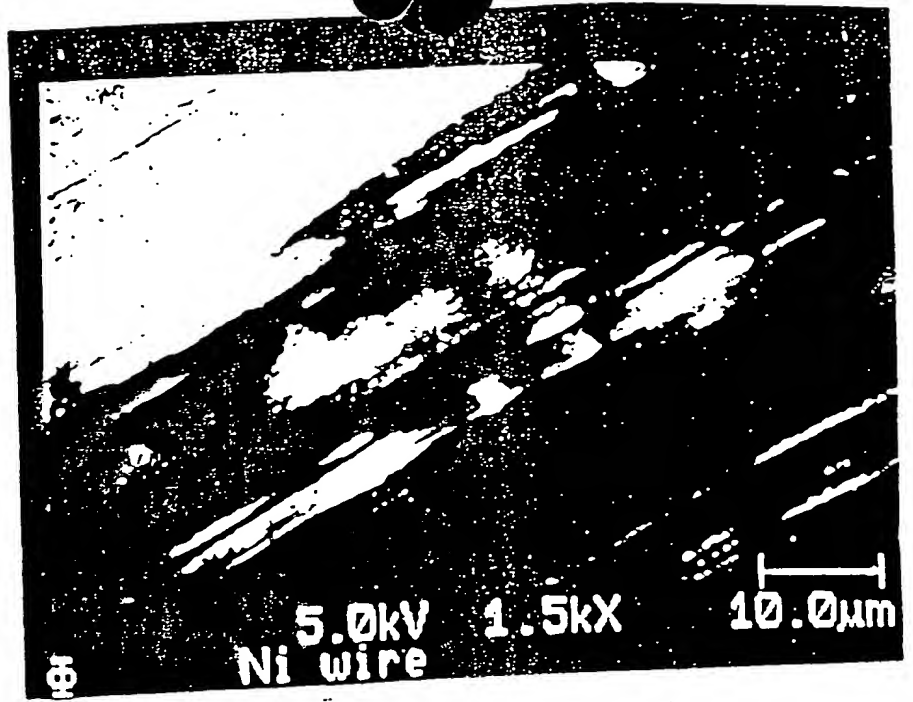
AES SURVEY V/F 11/29/93 AREA 1 ACO TIME=13.34 MIN.

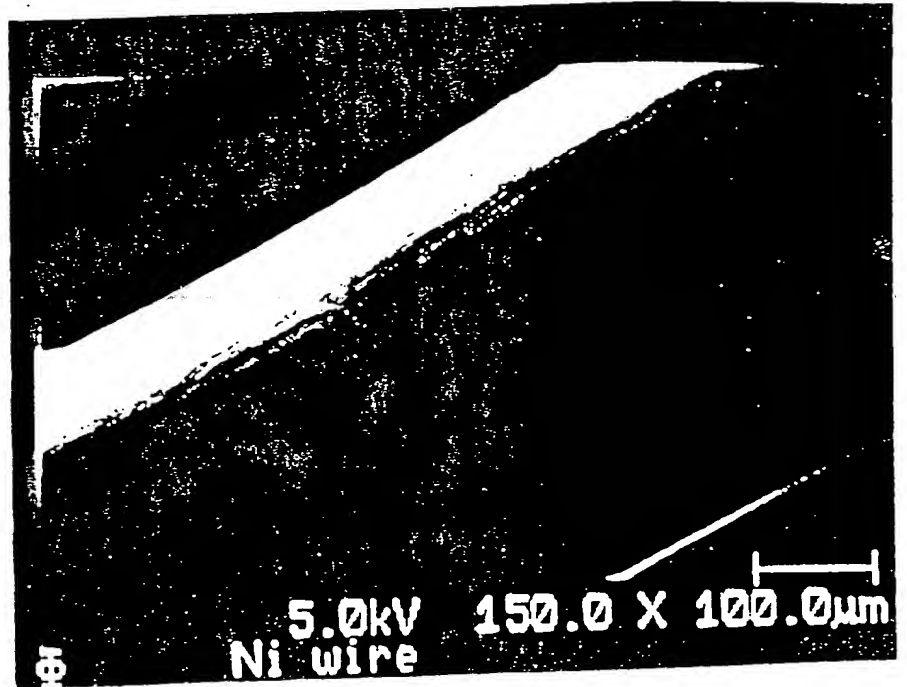
FILE: Nitest104 Ni wire treated for 24 Hr at the IRC.

SCALE FACTOR= 47.398 k c/s, OFFSET= 118.853 k c/s BV=5.00kV BI=0.2793uA





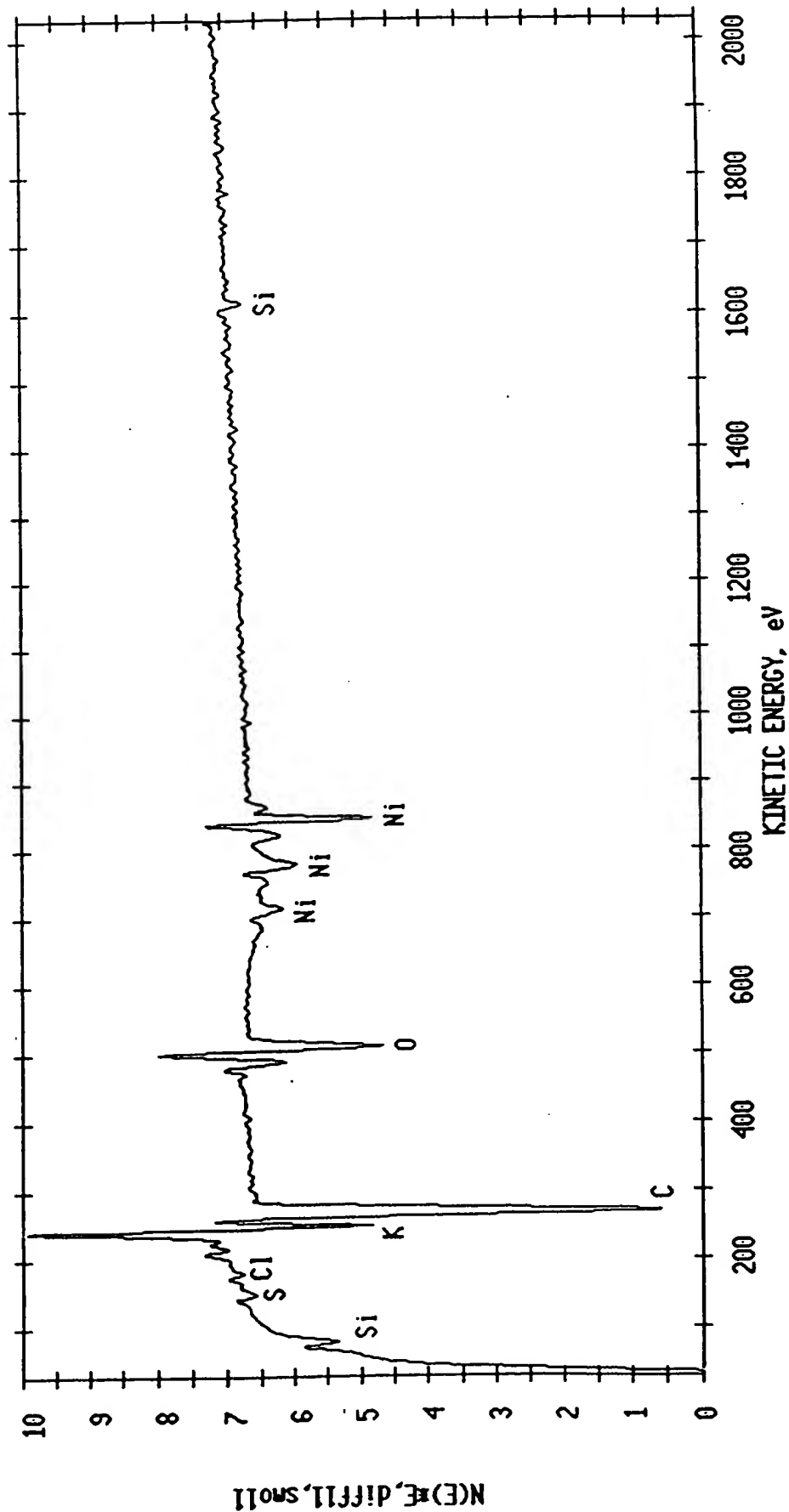




AES SURVEY V/F 11/29/93 AREA 1 ACO TIME=6.67 MIN.

FILE: Nitest103 Ni wire treated for 24 Hr at the IRC.

SCALE FACTOR= 35.917 k c/s, OFFSET= 331.575 k c/s BV=5.00kV BI=0.2793uA



30-Nov-1993 09:39:41

Ni-AR-1

Zaster

Accelerating voltage                    20.0 KeV  
Beam - sample incidence angle        90.0 degrees  
Xray emergence angle                35.0 degrees  
Xray - window incidence angle        0.0 degrees

STANDARDLESS EDS ANALYSIS  
(ZAF CORRECTIONS VIA MAGIC V)

ELEMENT & LINE	WEIGHT PERCENT	ATOMIC PERCENT*	PRECISION ± SIGMA	K-RATIO**
Al KA	1.89	4.00	0.09	0.0059
Si KA	0.69	1.41	0.07	0.0029
Mn KA	0.08	0.08	0.02	0.0009
Fe KA	0.10	0.10	0.02	0.0013
Ni KA	97.24	94.41	0.42	0.9699
TOTAL	100.00			

ITERATIONS                    6

\*NOTE: ATOMIC PERCENT is normalized to 100

\*\*NOTE: K-RATIO = K-RATIO x R  
where R = reference(standard)/reference(sample)

NORMALIZATION FACTOR:    1.000

30-Nov-1993 09:41:17

Ni-AR-2

spot

Accelerating voltage 20.0 KeV  
Beam - sample incidence angle 90.0 degrees  
Xray emergence angle 35.0 degrees  
Xray - window incidence angle 0.0 degrees

STANDARDLESS EDS ANALYSIS  
(ZAF CORRECTIONS VIA MAGIC V)

ELEMENT & LINE	WEIGHT PERCENT	ATOMIC PERCENT*	PRECISION 2 SIGMA	K-RATIO**
Al KA	2.22	4.66	0.10	0.0070
Si KA	0.80	1.62	0.07	0.0034
Mn KA	0.05	0.05	0.02	0.0006
Fe KA	0.05	0.05	0.02	0.0007
Ni KA	96.88	93.61	0.45	0.9660
TOTAL	100.00			

ITERATIONS 6

\*NOTE: ATOMIC PERCENT is normalized to 100

\*\*NOTE:  $K-RATIO = K-RATIO \times R$   
where  $R = \text{reference(standard)}/\text{reference(sample)}$

NORMALIZATION FACTOR: 1.000

30-Nov-1993 09:47:39

Ni-AR-4

*Raster*

Accelerating voltage 20.0 KeV  
Beam - sample incidence angle 90.0 degrees  
Xray emergence angle 35.0 degrees  
Xray - window incidence angle 0.0 degrees

STANDARDLESS EDS ANALYSIS  
(ZAF CORRECTIONS VIA MAGIC V)

ELEMENT & LINE	WEIGHT PERCENT	ATOMIC PERCENT*	PRECISION 2 SIGMA	K-RATIO**
Al KA	4.11	8.52	0.10	0.0130
Mn KA	0.09	0.09	0.02	0.0011
Fe KA	0.07	0.07	0.02	0.0010
Ni KA	95.73	91.31	0.39	0.9535

TOTAL 100.00

ITERATIONS 7

\*NOTE: ATOMIC PERCENT is normalized to 100

\*\*NOTE:  $K-RATIO = K-RATIO \times R$   
where  $R = reference(standard)/reference(sample)$

NORMALIZATION FACTOR: 1.000

30-Nov-1993 09:42:46

Ni-AR-3

Sp. +

Accelerating voltage 20.0 KeV  
Beam - sample incidence angle 90.0 degrees  
Xray emergence angle 35.0 degrees  
Xray - window incidence angle 0.0 degrees

STANDARDLESS EDS ANALYSIS  
(ZAF CORRECTIONS VIA MAGIC V)

ELEMENT & LINE	WEIGHT PERCENT	ATOMIC PERCENT*	PRECISION 2 SIGMA	K-RATIO**
Al KA	3.17	6.61	0.12	0.0100
Si KA	0.71	1.42	0.06	0.0030
Mn KA	0.05	0.05	0.01	0.0005
Fe KA	0.08	0.08	0.02	0.0010
Ni KA	95.99	91.85	0.44	0.9561
TOTAL	100.00			

ITERATIONS 7

\*NOTE: ATOMIC PERCENT is normalized to 100

\*\*NOTE:  $K-RATIO = K-RATIO \times R$   
where  $R = \text{reference(standard)} / \text{reference(sample)}$

NORMALIZATION FACTOR: 1.000

30-Nov-1993 09:57:31

Ni-T-2

5, 2, 1

Accelerating voltage 20.0 KeV  
Beam - sample incidence angle 90.0 degrees  
Xray emergence angle 35.0 degrees  
Xray - window incidence angle 0.0 degrees

STANDARDLESS EDS ANALYSIS  
(ZAF CORRECTIONS VIA MAGIC V)

ELEMENT & LINE	WEIGHT PERCENT	ATOMIC PERCENT*	PRECISION 2 SIGMA	K-RATIO**
Al KA	3.80	7.90	0.12	0.0120
K KA	0.34	0.49	0.04	0.0029
Mn KA	0.04	0.04	0.01	0.0005
Fe KA	0.06	0.06	0.02	0.0008
Ni KA	95.75	91.50	0.43	0.9537
TOTAL	99.99			

ITERATIONS 6

\*NOTE: ATOMIC PERCENT is normalized to 100

\*\*NOTE: K-RATIO = K-RATIO x R  
where R = reference(standard)/reference(sample)

NORMALIZATION FACTOR: 1.000



30-Nov-1993 09:54:39

Ni-T-1

Roster

Accelerating voltage 20.0 KeV  
Beam - sample incidence angle 90.0 degrees  
Xray emergence angle 35.0 degrees  
Xray - window incidence angle 0.0 degrees

STANDARDLESS EDS ANALYSIS  
(ZAF CORRECTIONS VIA MAGIC V)

Only ~1/2 - 2%  
probably

ELEMENT & LINE	WEIGHT PERCENT	ATOMIC PERCENT*	PRECISION 2 SIGMA	K-RATIO**
Al KA	6.47	13.07	0.16	0.0208
K KA	0.35	0.48	0.04	0.0030
Mn KA	0.08	0.08	0.02	0.0009
Fe KA	0.06	0.06	0.02	0.0008
Ni KA	93.04	86.32	0.39	0.9247
TOTAL	100.00			

ITERATIONS 7

\*NOTE: ATOMIC PERCENT is normalized to 100

\*\*NOTE:  $K-RATIO = K-RATIO \times R$   
where  $R = \text{reference(standard)}/\text{reference(sample)}$

NORMALIZATION FACTOR: 1.000

30-Nov-1993 10:00:28

Ni-T-3

Spot

Accelerating voltage 20.0 KeV  
Beam - sample incidence angle 90.0 degrees  
Xray emergence angle 35.0 degrees  
Xray - window incidence angle 0.0 degrees

STANDARDLESS EDS ANALYSIS  
(ZAF CORRECTIONS VIA MAGIC V)

*Only ~1% - 2%  
probably*

ELEMENT & LINE	WEIGHT PERCENT	ATOMIC PERCENT*	PRECISION 2 SIGMA	K-RATIO**
Al KA	6.00	12.18	0.17	0.0193
K KA	0.38	0.53	0.04	0.0032
Mn KA	0.08	0.08	0.02	0.0009
Fe KA	0.07	0.06	0.02	0.0009
Ni KA	93.47	87.14	0.41	0.9293
TOTAL	100.00			

ITERATIONS 7

\*NOTE: ATOMIC PERCENT is normalized to 100

\*\*NOTE: K-RATIO = K-RATIO x R  
where R = reference(standard)/reference(sample)

NORMALIZATION FACTOR: 1.000

30-Nov-1993 10:02:41

Ni-T-4

*205 to*

Accelerating voltage                    20.0 KeV  
Beam - sample incidence angle        90.0 degrees  
Xray emergence angle                35.0 degrees  
Xray - window incidence angle       0.0 degrees

STANDARDLESS EDS ANALYSIS  
(ZAF CORRECTIONS VIA MAGIC V)

ELEMENT & LINE	WEIGHT PERCENT	ATOMIC PERCENT*	PRECISION 2 SIGMA	K-RATIO**
Al KA	1.46	3.12	0.09	0.0045
K KA	0.25	0.36	0.03	0.0021
Mn KA	0.09	0.09	0.02	0.0010
Fe KA	0.09	0.09	0.02	0.0012
Ni KA	98.11	96.33	0.42	0.9795
TOTAL	100.00			

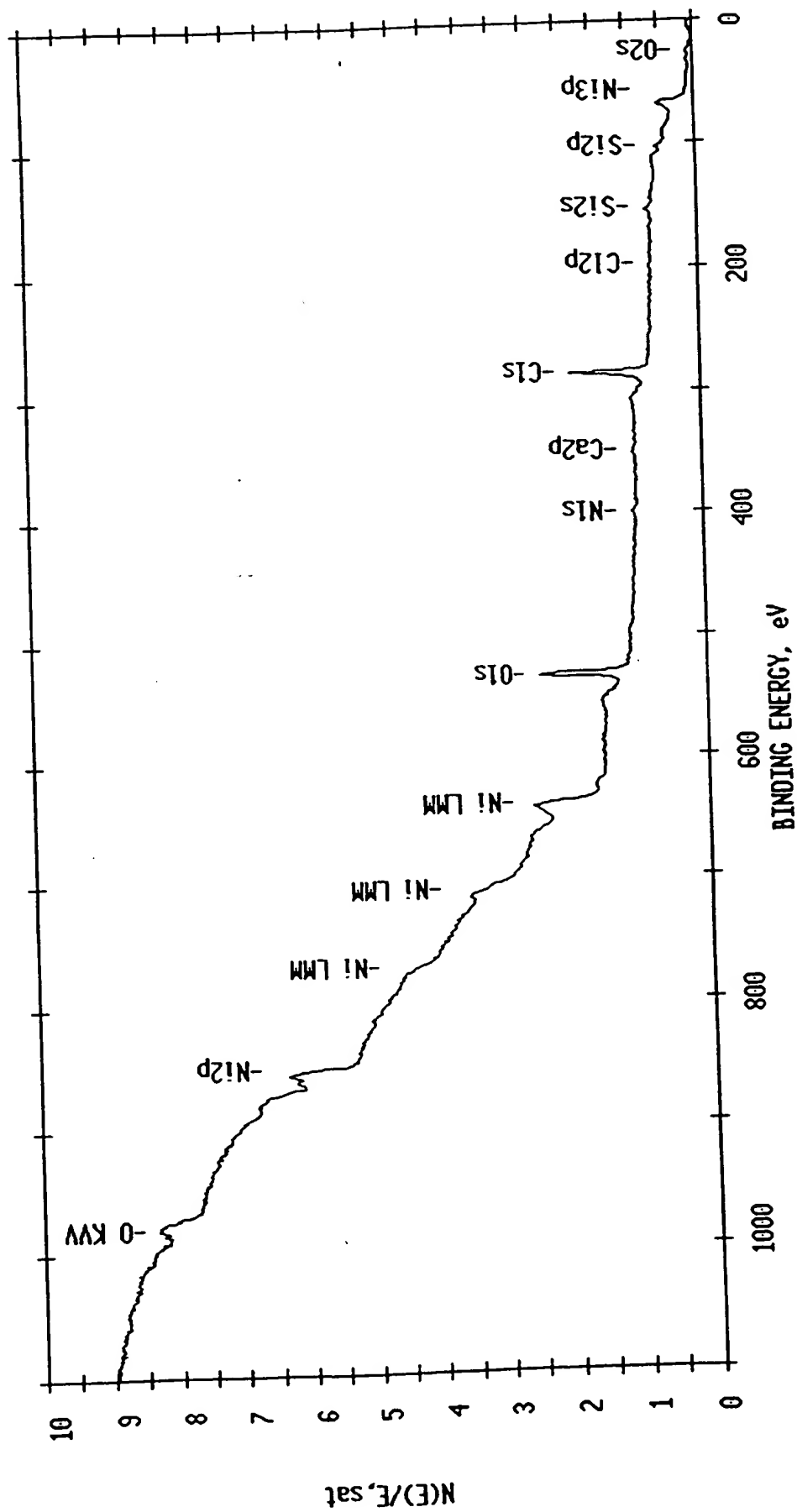
ITERATIONS            6

\*NOTE: ATOMIC PERCENT is normalized to 100

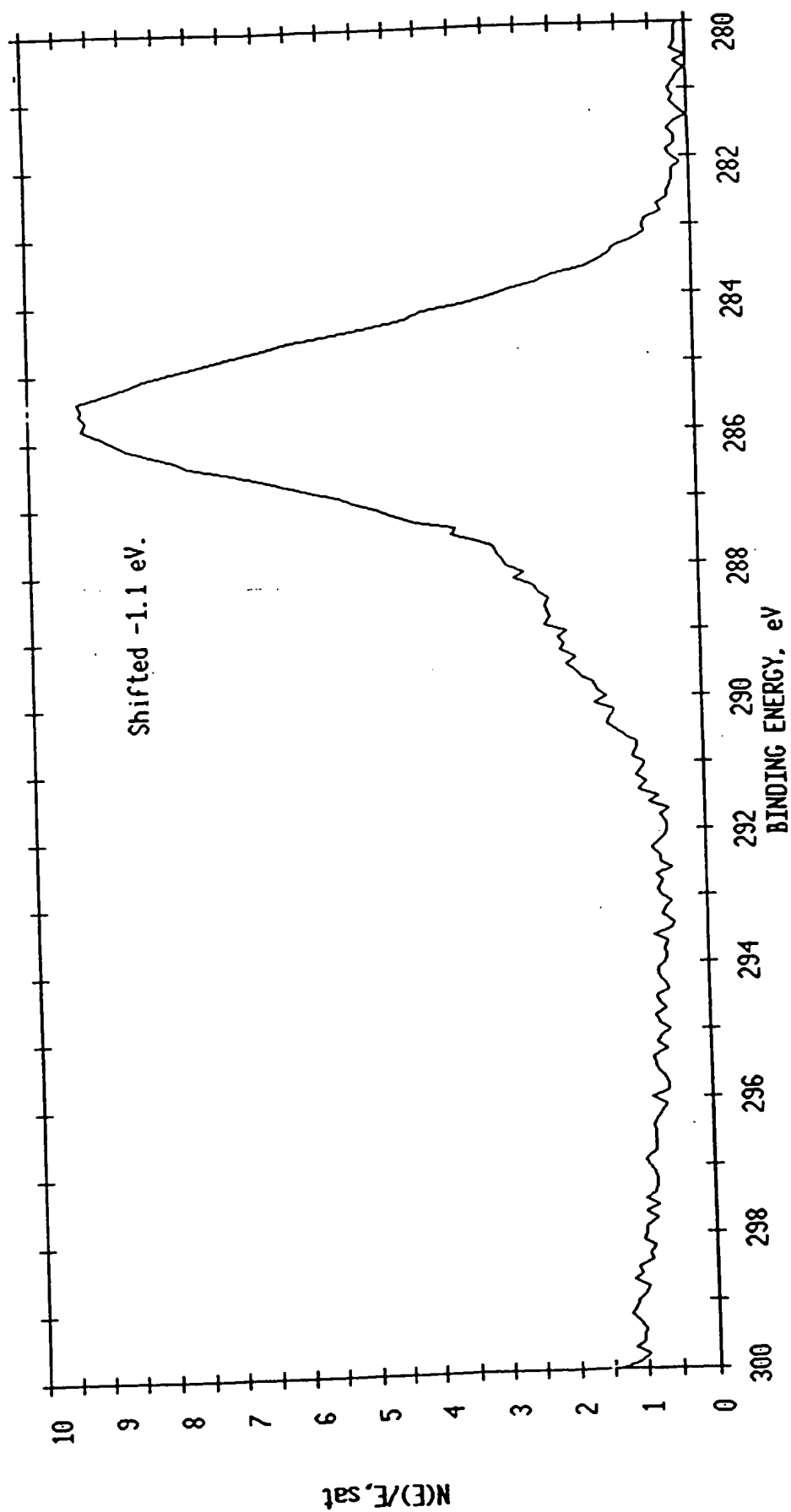
\*\*NOTE:  $K-RATIO = K-RATIO \times R$   
where  $R = \text{reference(standard)}/\text{reference(sample)}$

NORMALIZATION FACTOR:    1.000

ESCA SURVEY 11/19/93 ANGLE= 15 deg ACQ TIME=29.36 min  
 FILE: Nitest28 Ni wire untreated (base line) using Al X-Ray's.  
 SCALE FACTOR= 10.010 k c/s, OFFSET= 1.574 k c/s PASS ENERGY=178.950 eV Al 400 W



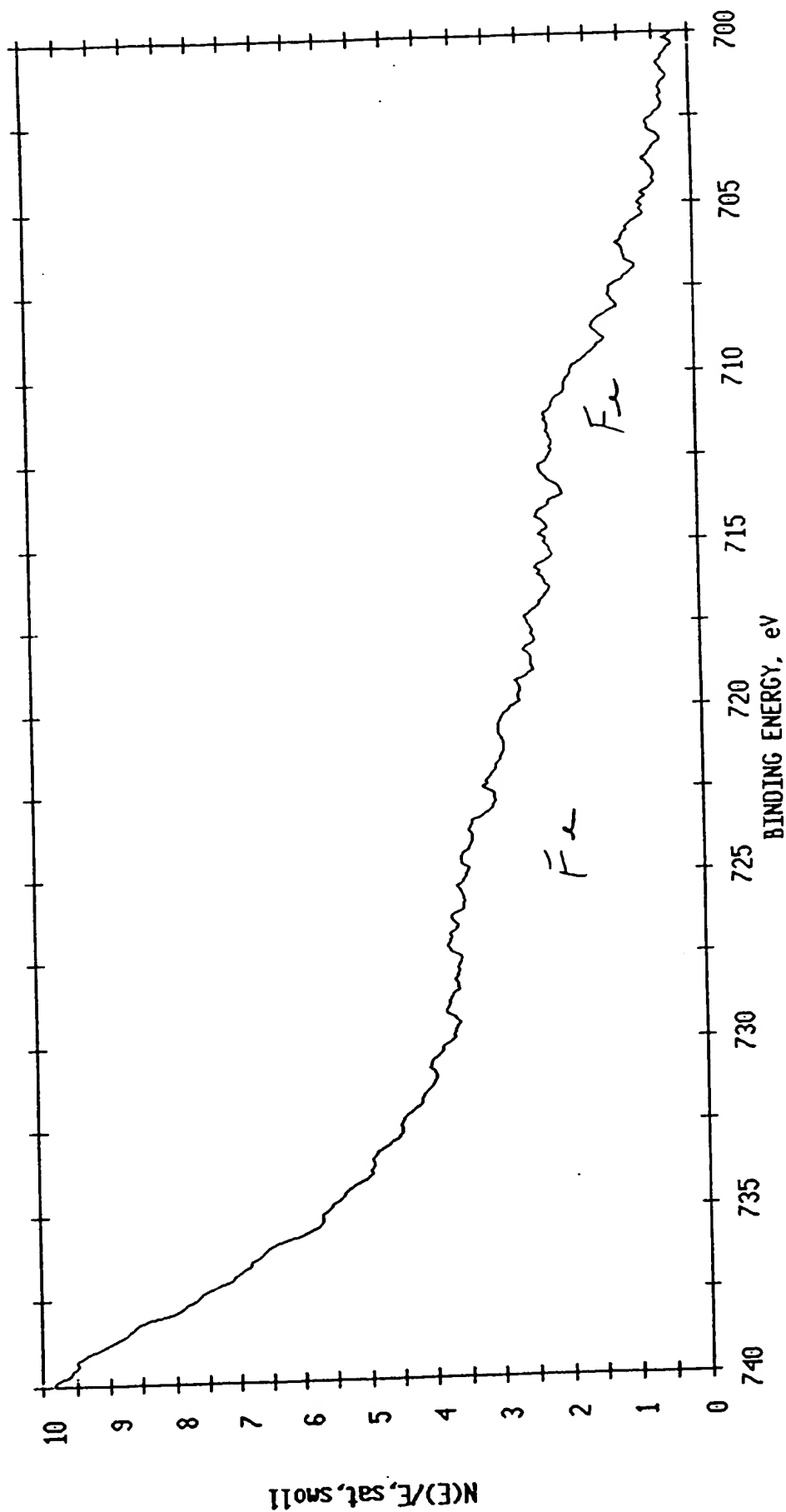
ESCA MULTIPLEX 11/19/93 EL=C1 REG 1 ANGLE= 15 deg ACQ TIME=4.19 min  
FILE: Nitest27 Ni wire untreated (base line) using Al X-Ray's.  
SCALE FACTOR= 0.928 k c/s, OFFSET= 5.646 k c/s PASS ENERGY=143.050 eV Al 400 W



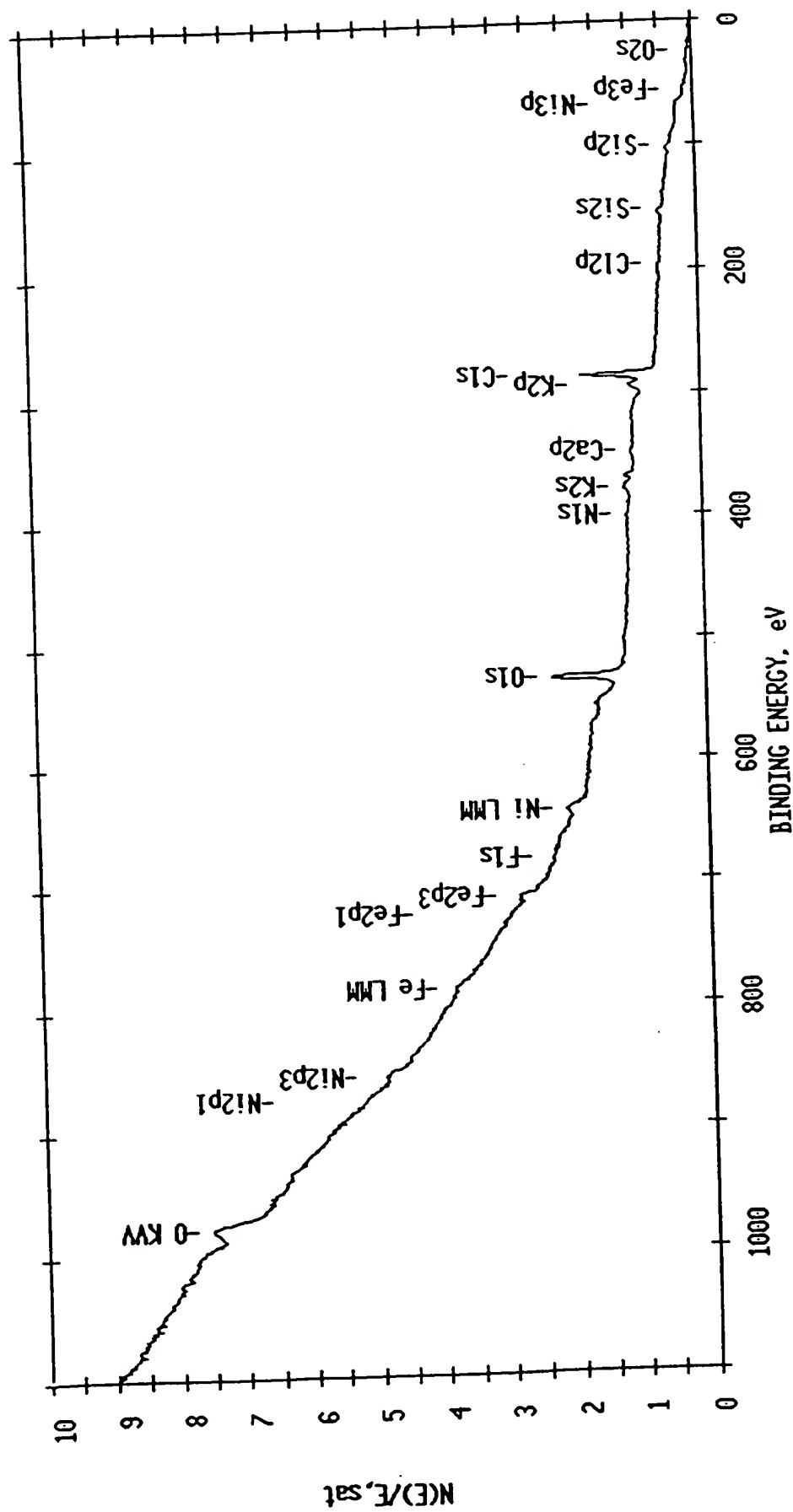
ESCA MULTIPLEX 11/29/93 EL=Fe1 REG 1 ANGLE= 15 deg ACO TIME=116.96 min

FILE: Nitest55 More Fe spectra of Ni wire treated overnight at the IRC

SCALE FACTOR= 0.134 k c/s, OFFSET= 9.937 k c/s PASS ENERGY=143.050 eV Mg 300 W

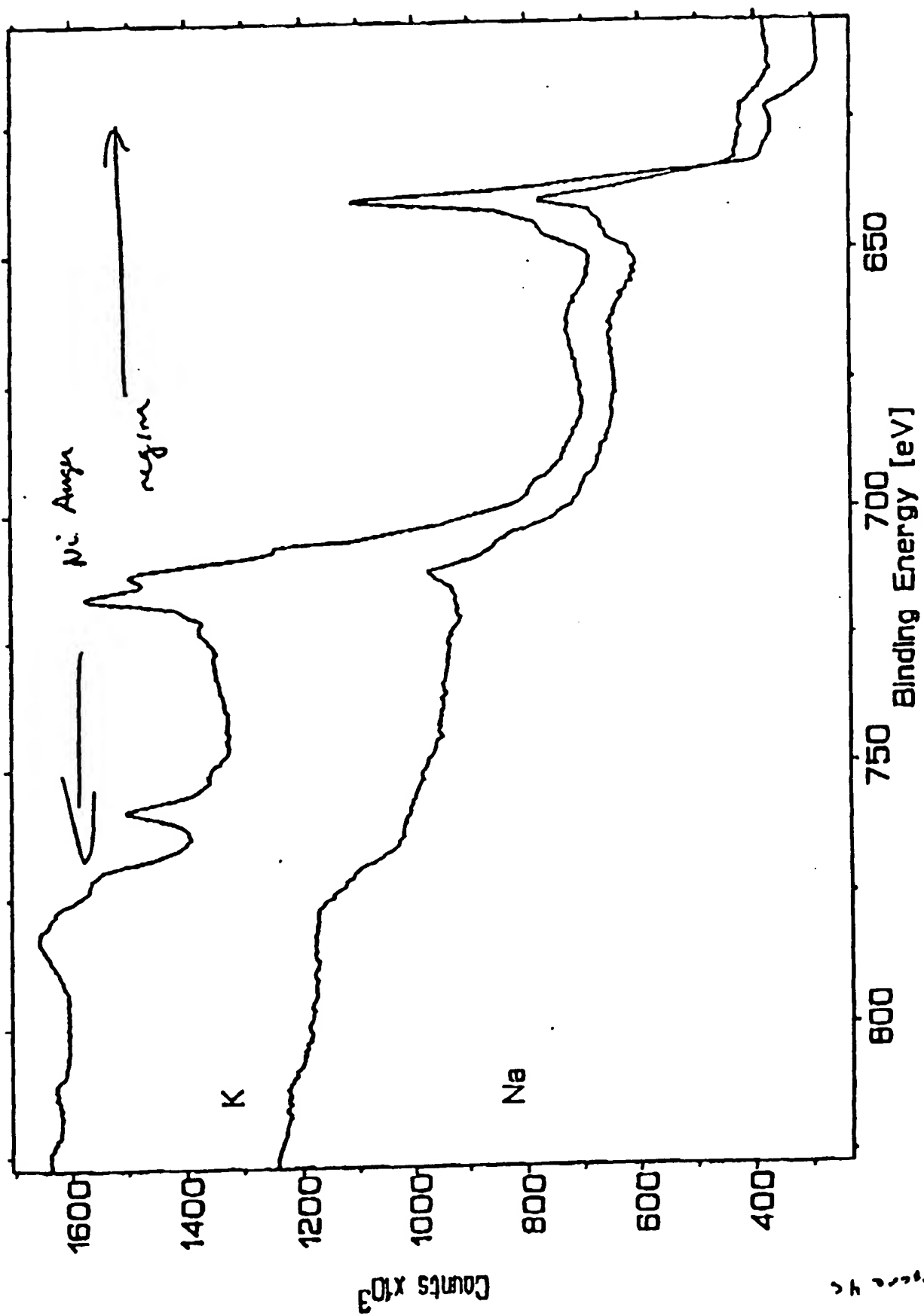


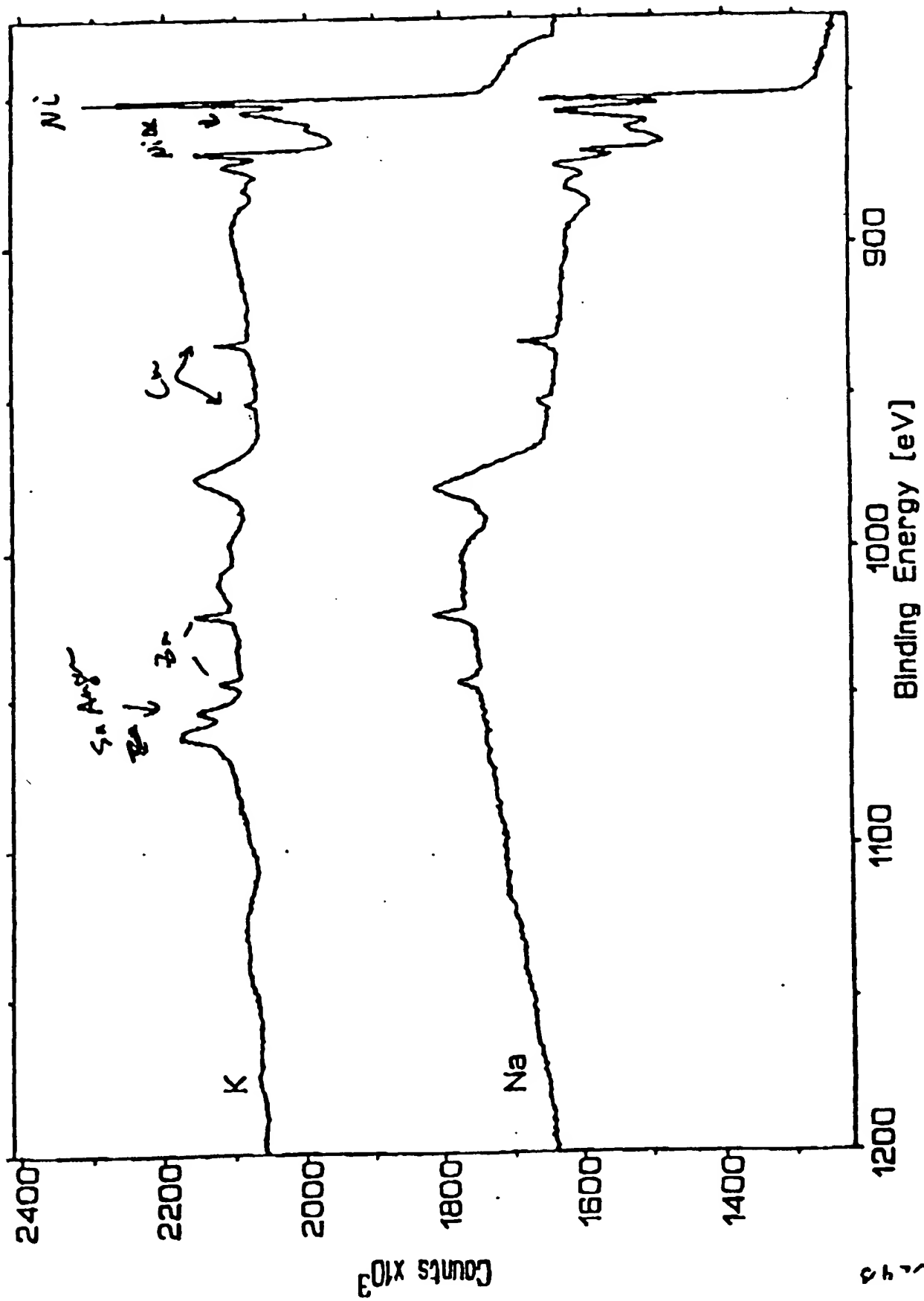
ESCA SURVEY 11/24/93 ANGLE= 15 deg ACQ TIME=29.36 min  
FILE: Nitest51 Ni wire treated overnight at IRC.  
SCALE FACTOR= 7.011 k c/s, OFFSET= 0.979 k c/s PASS ENERGY=178.950 eV Al 400 W



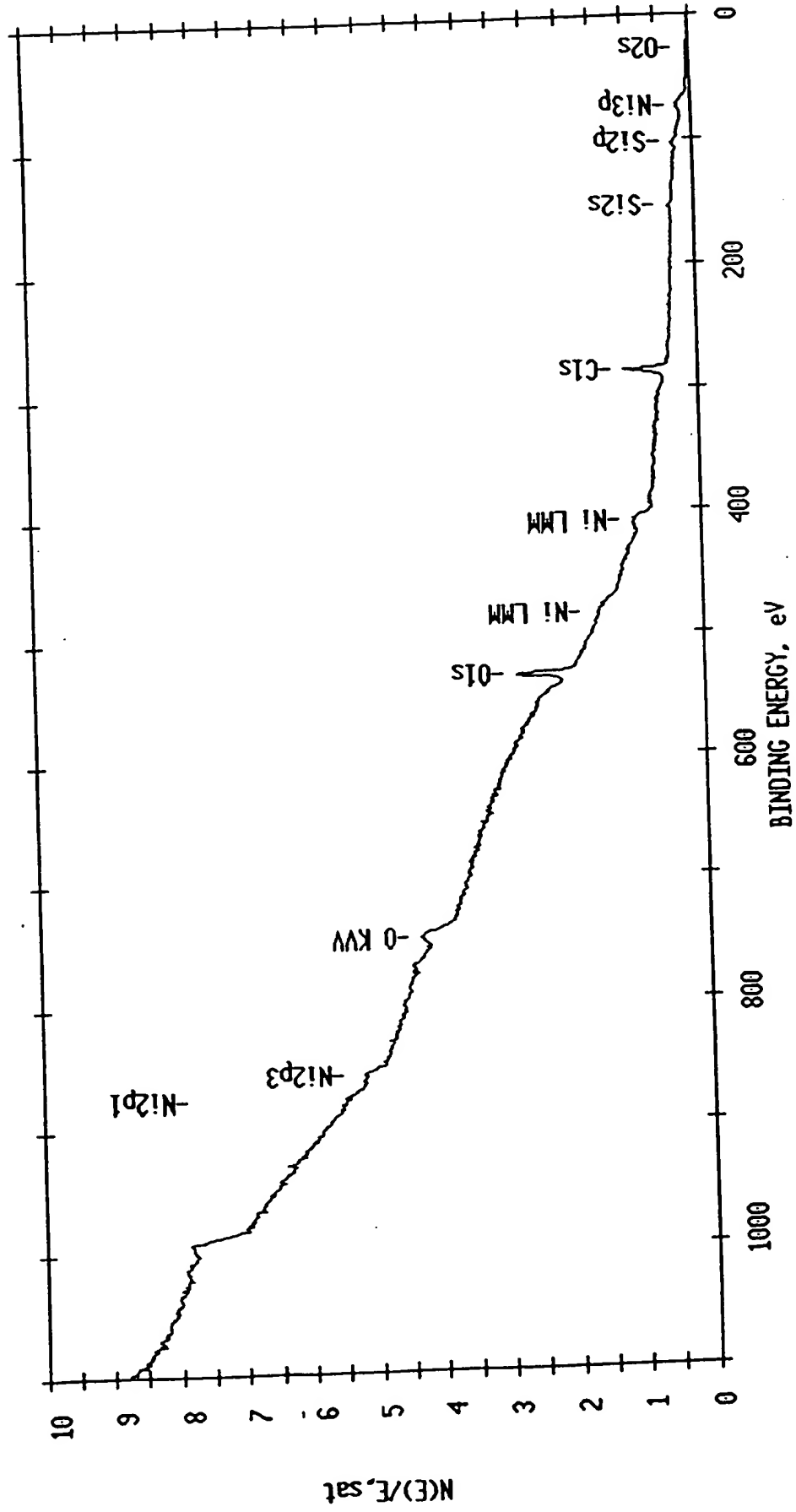




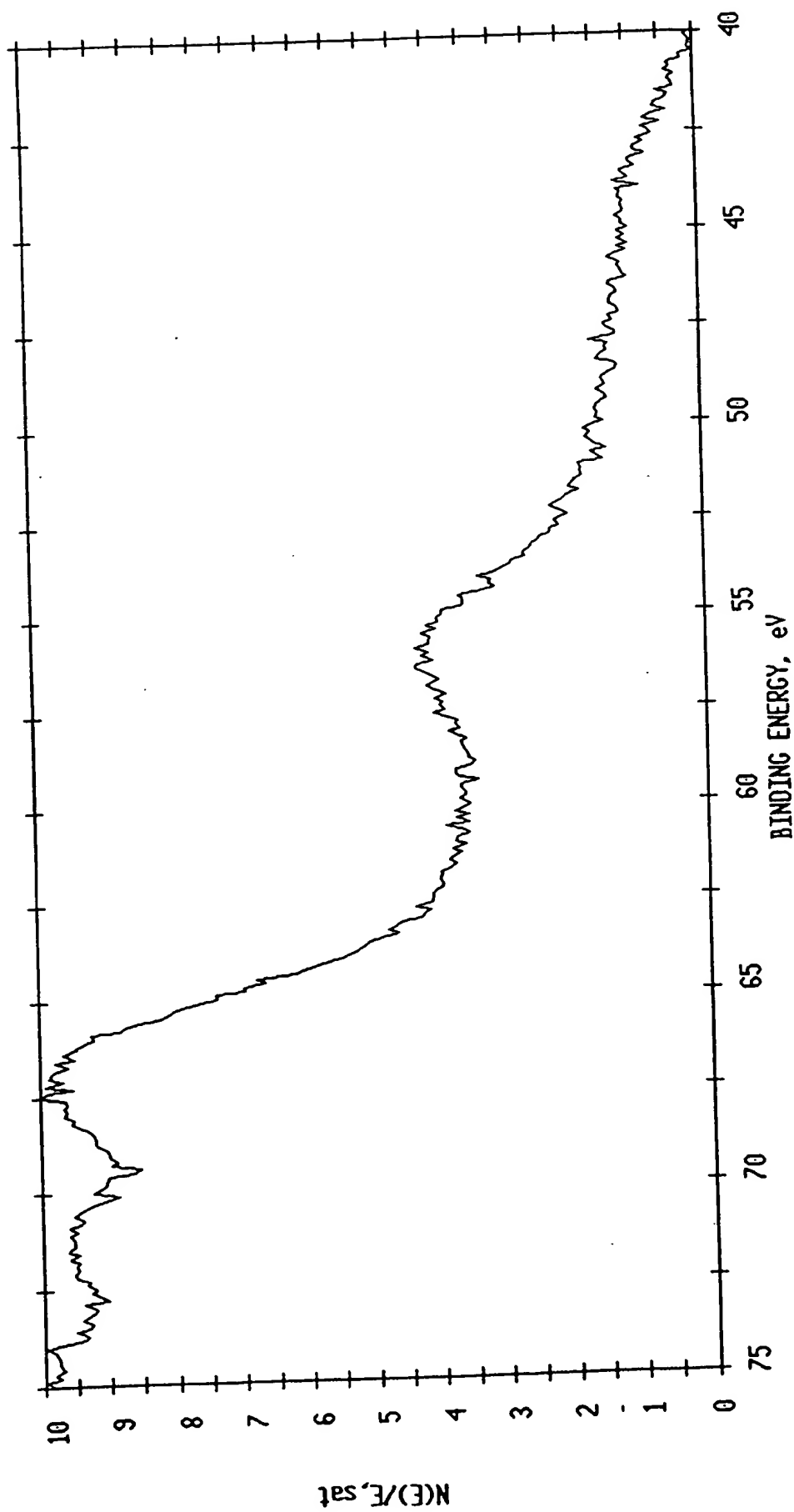




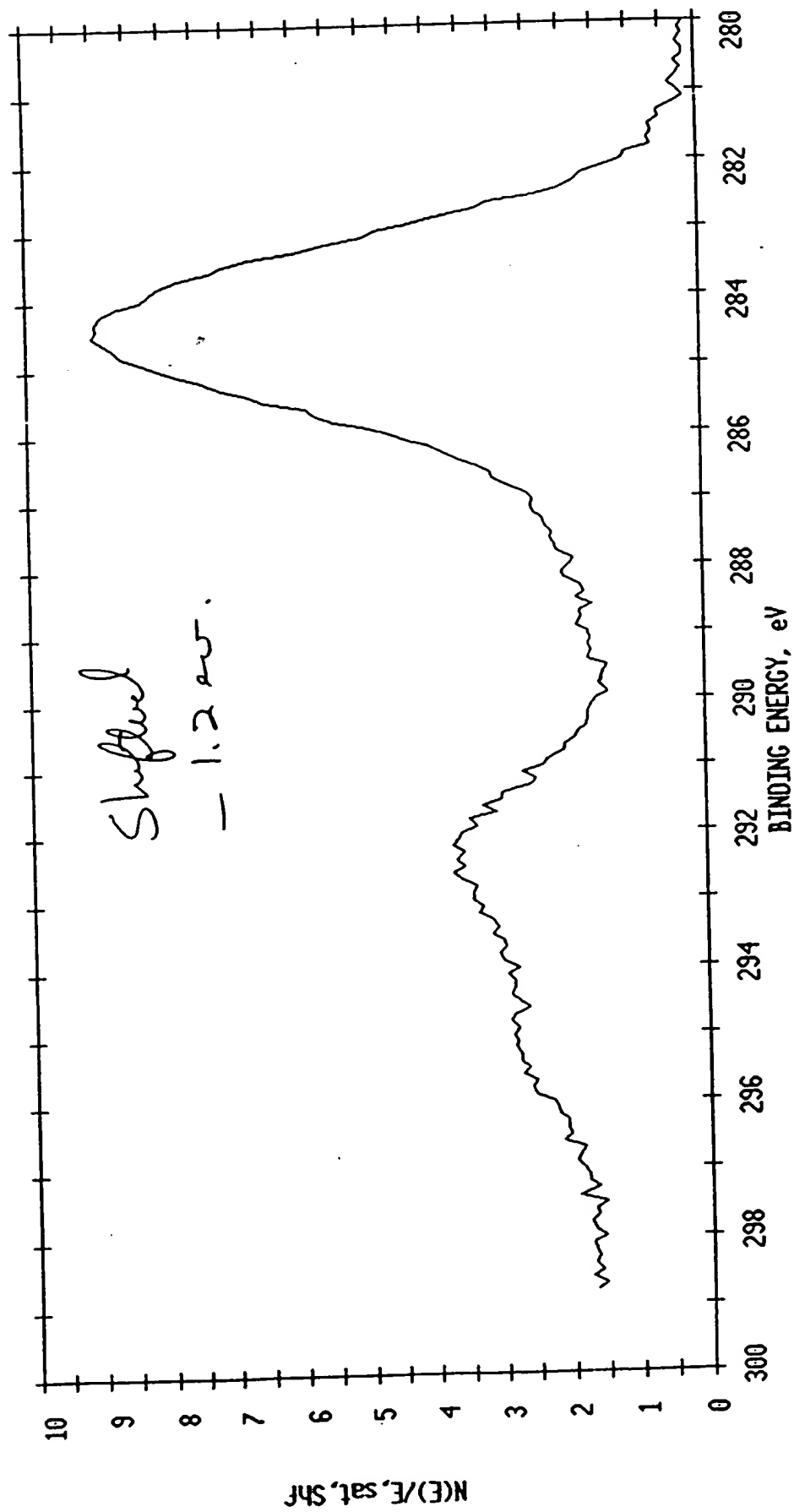
ESCA SURVEY 11/29/93 ANGLE= 15 deg ACQ TIME=29.36 min  
 FILE: Nitest56 Ni wire treated over Thanksgiving weekend.  
 SCALE FACTOR= 4.822 k c/s, OFFSET= 0.306 k c/s PASS ENERGY=178.950 eV Mg 300 W



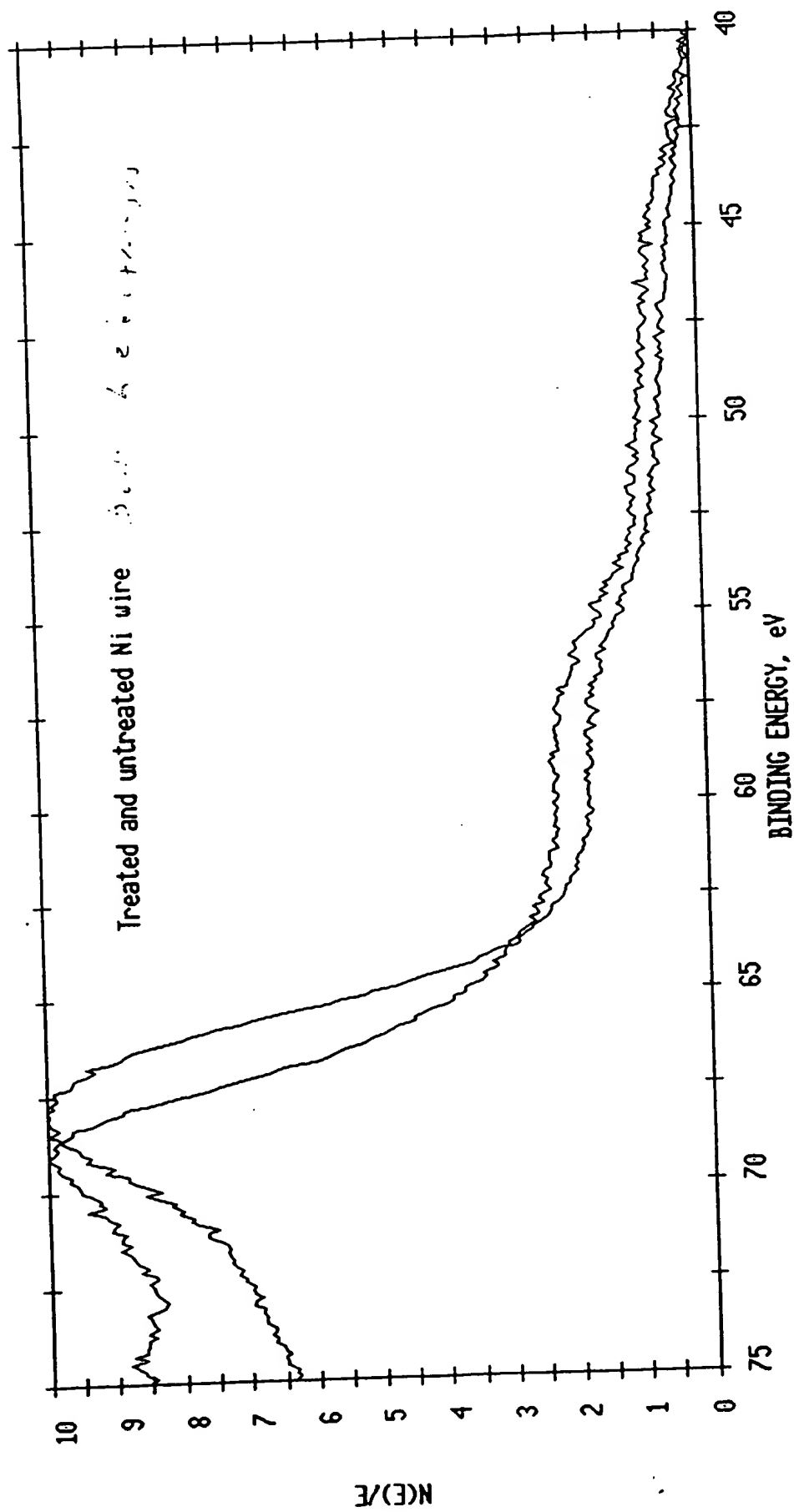
ESCA MULTIPLEX 11/24/93 EL= REG 2 ANGLE= 15 deg ACO TIME=114.08 min  
FILE: Nitest50 Ni wire treated overnight at IRC.  
SCALE FACTOR= 0.095 k c/s, OFFSET= 1.036 k c/s PASS ENERGY=143.050 eV Al 400 W



ESCA MULTIPLEX 11/24/93 EL=C1 REG 1 ANGLE= 15 deg ACO TIME=7.54 min  
FILE: Nitest50 Ni wire treated overnight at IRC.  
SCALE FACTOR= 0.569 k c/s, OFFSET= 3.655 k c/s PASS ENERGY=143.050 eV Al 400 W



ESCA MULTIPLEX 11/19/93 EL= REG 2 ANGLE= 15 deg ACO TIME=61.43 min  
FILE: Nitest27 Ni wire untreated (base line) using Al X-Ray's.  
SCALE FACTOR= 0.307 k c/s, OFFSET= 1.683 k c/s PASS ENERGY=143.050 eV Al 400 W





**SPACE and ADVANCED PROGRAMS UNIT**  
**P. O. BOX 1625**  
**IDAHO FALLS ID 83415**

To: Mike Hawkins

Company/Org: \_\_\_\_\_

Fax No: \_\_\_\_\_

Verify No: \_\_\_\_\_

From: Mike Jacob

Company/Org: \_\_\_\_\_

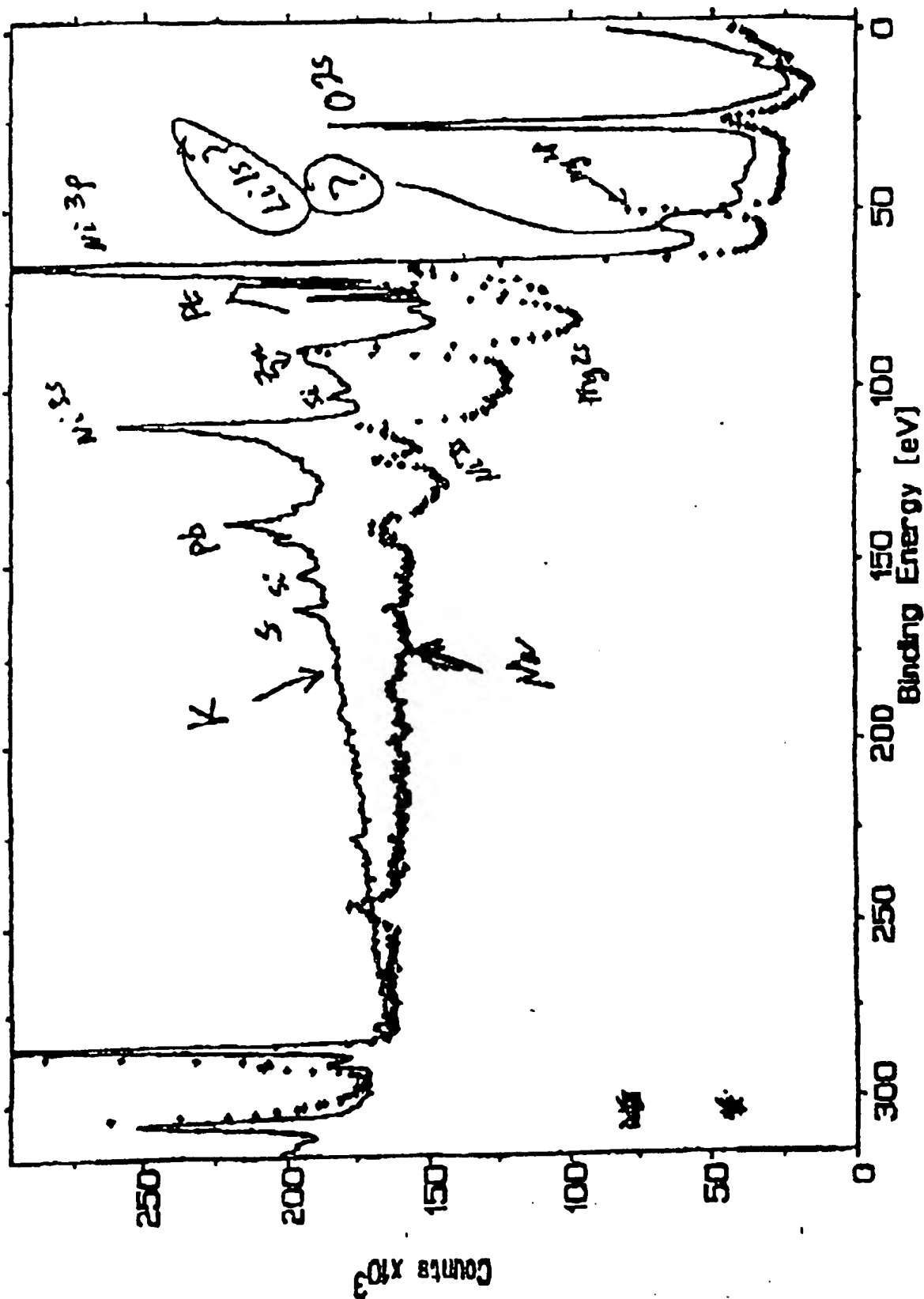
Phone No: \_\_\_\_\_

Fax No: 1-208-526-2061 (FTS) 8-208-526-2061

No. of pages including the cover page: 2

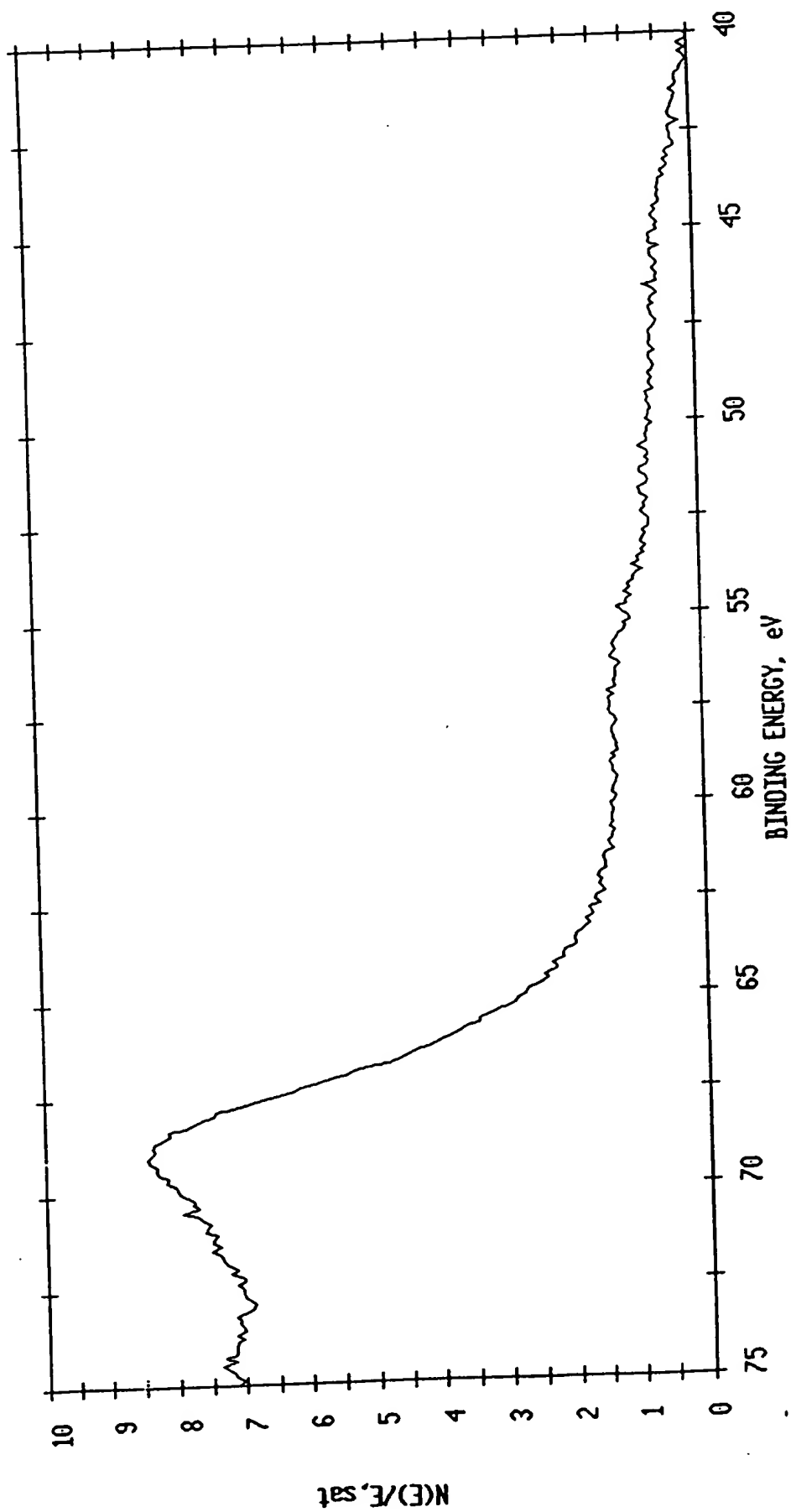
Note:

Figure 4A





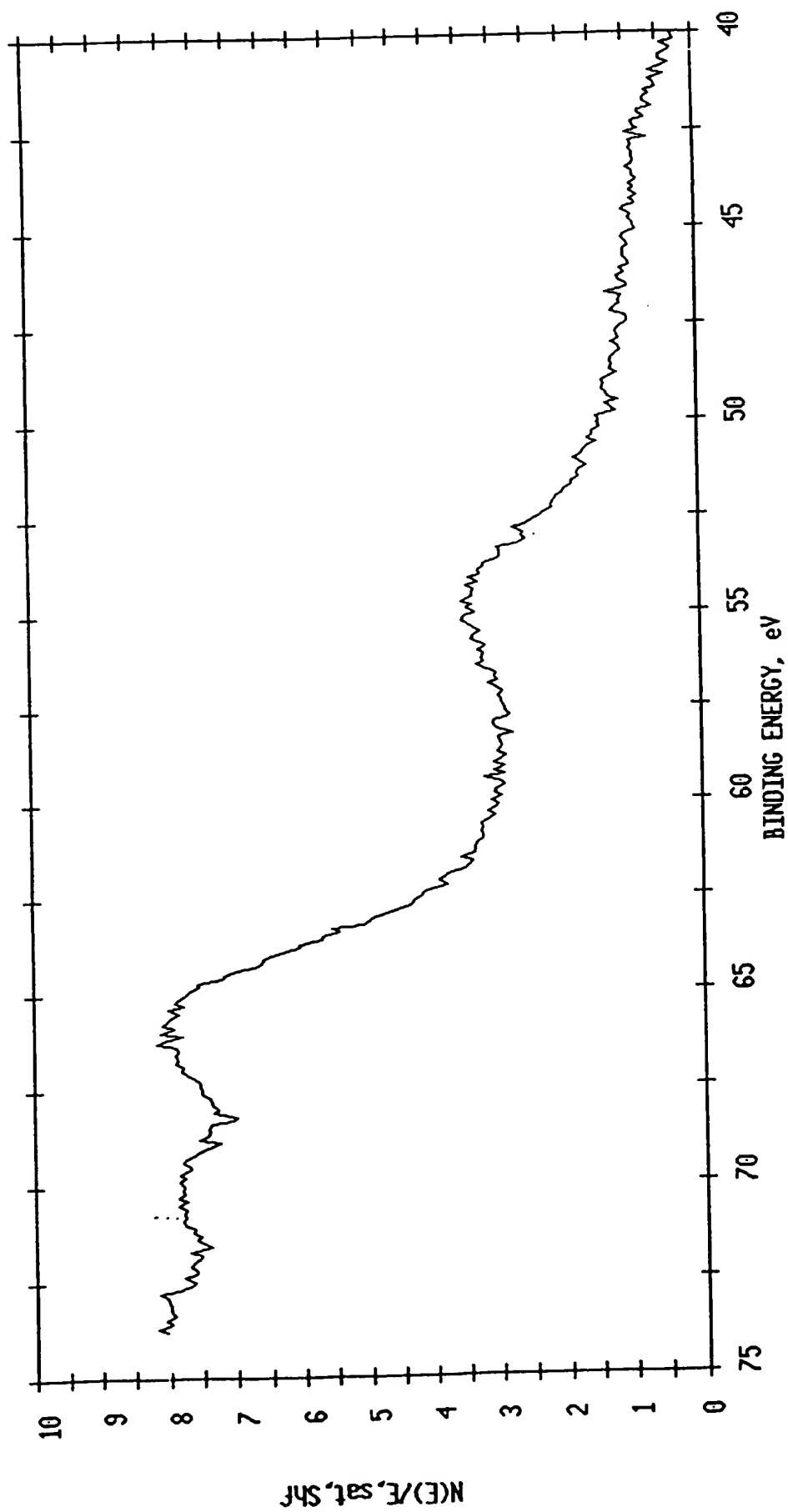
ESCA MULTIPLEX 11/18/93 EL= REG 2 ANGLE= 15 deg ACO TIME=67.28 min  
FILE: Nitest20 Ni wire processed in lab. as received.  
SCALE FACTOR= 0.331 k c/s, OFFSET= 2.436 k c/s PASS ENERGY=143.050 eV Al 400 W



ESCA MULTIPLEX 11/24/93 EL= REG 2 ANGLE= 15 deg ACQ TIME=114.08 min

FILE: Nitest50 Ni wire treated overnight at IRC.

SCALE FACTOR= 0.116 k c/s, OFFSET= 1.036 k c/s PASS ENERGY=143.050 eV Al 400 W



Cursor

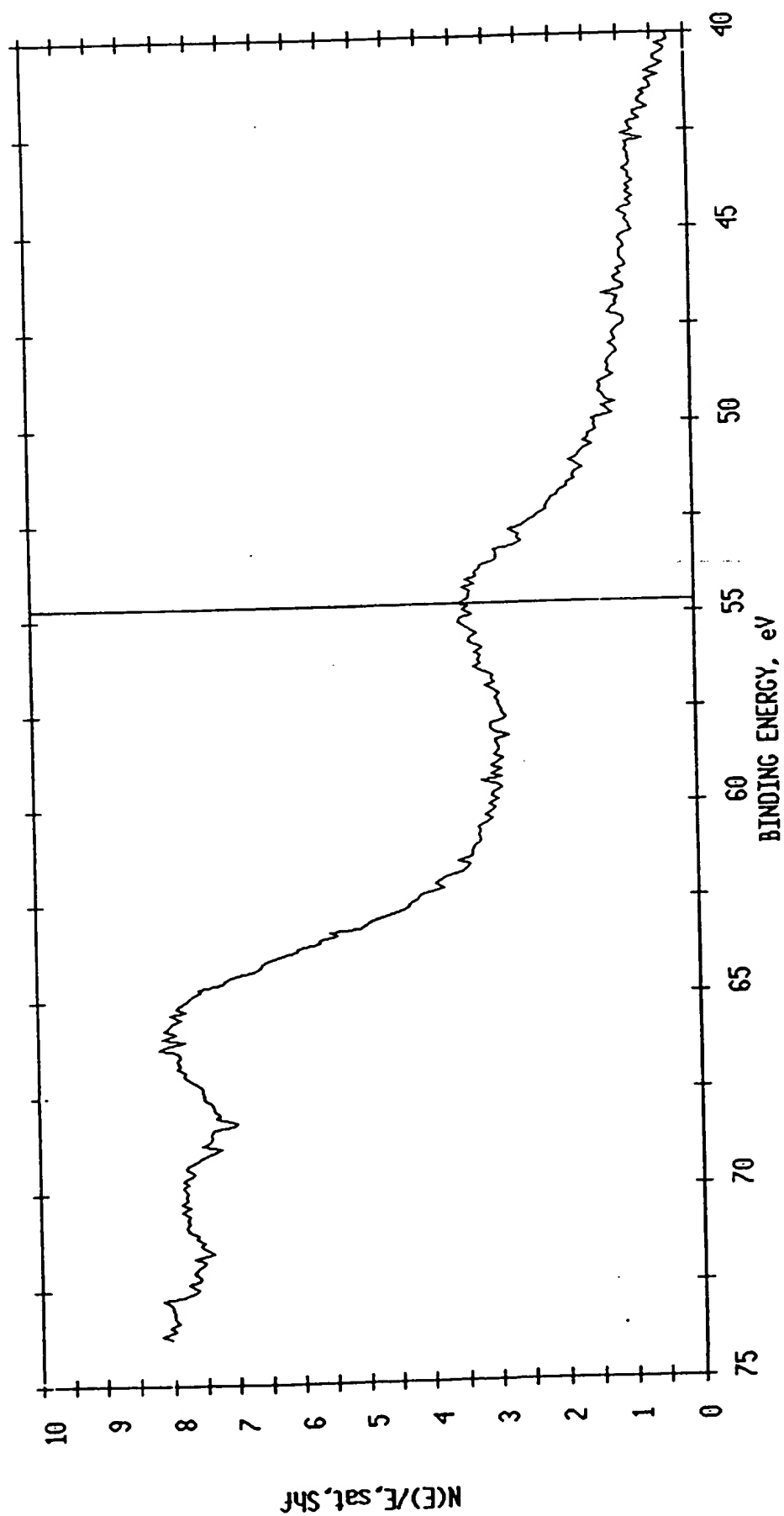
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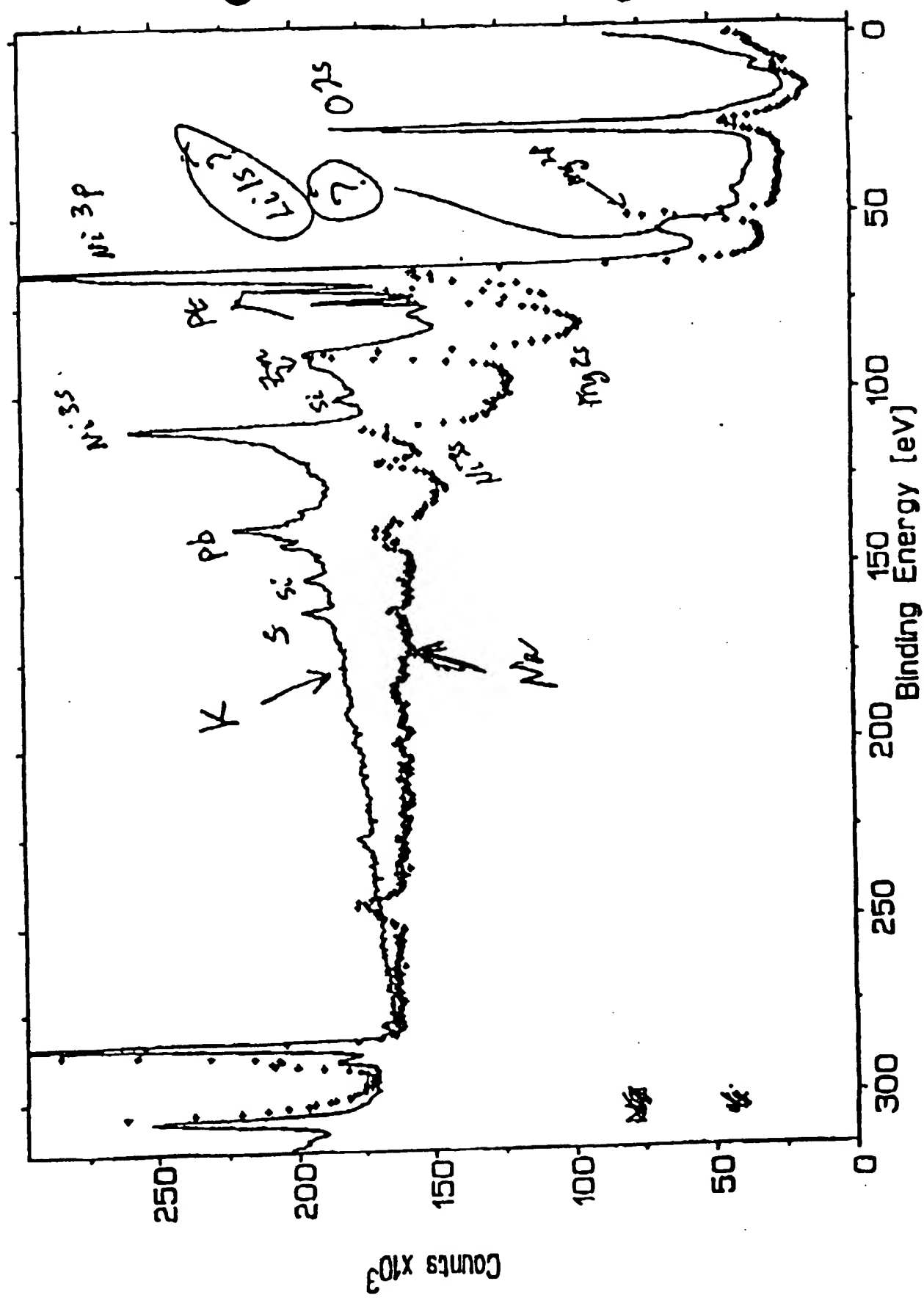
28173 Counts/Sec

Counts

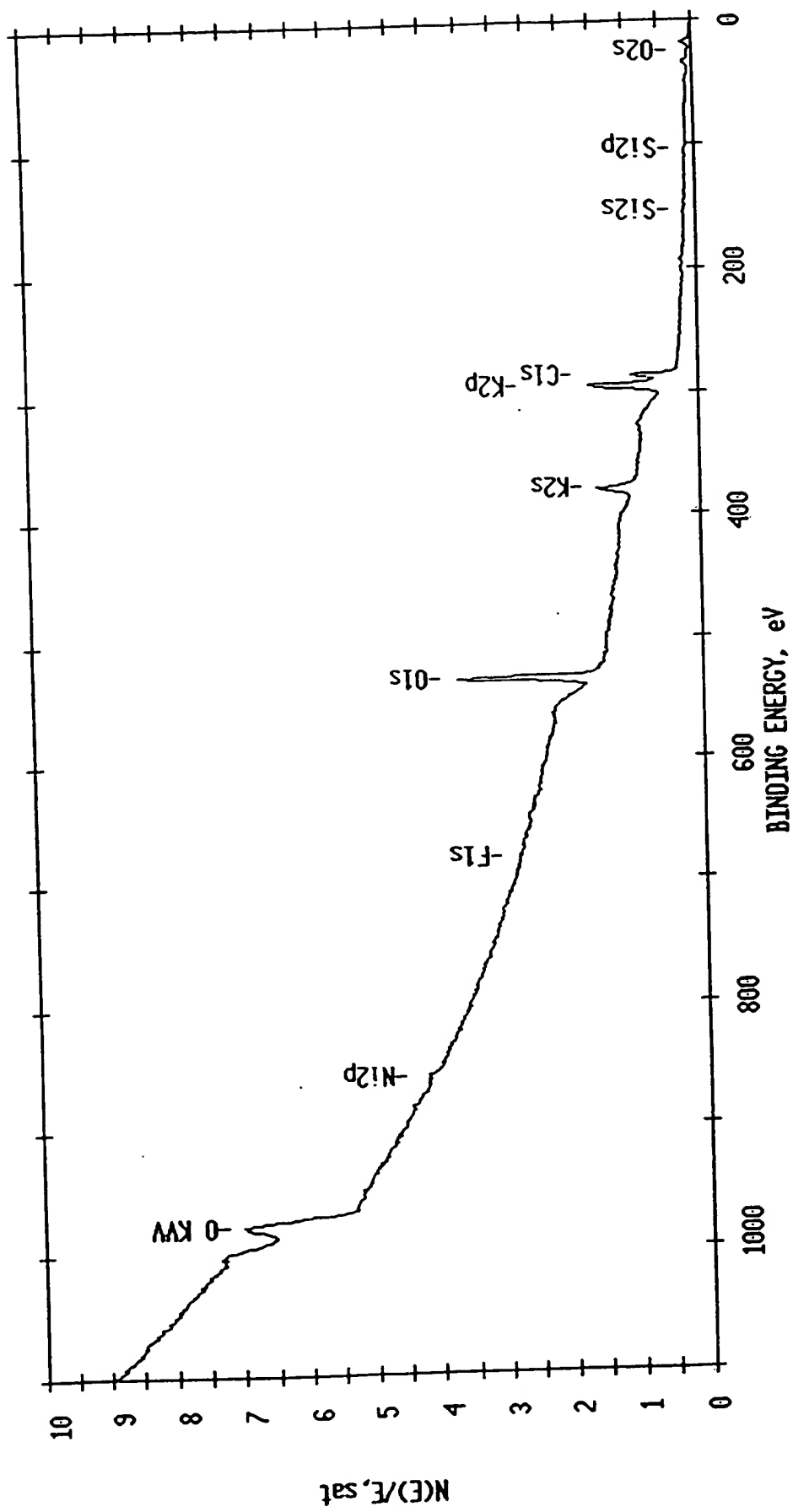
54.700

a Energy (eV)

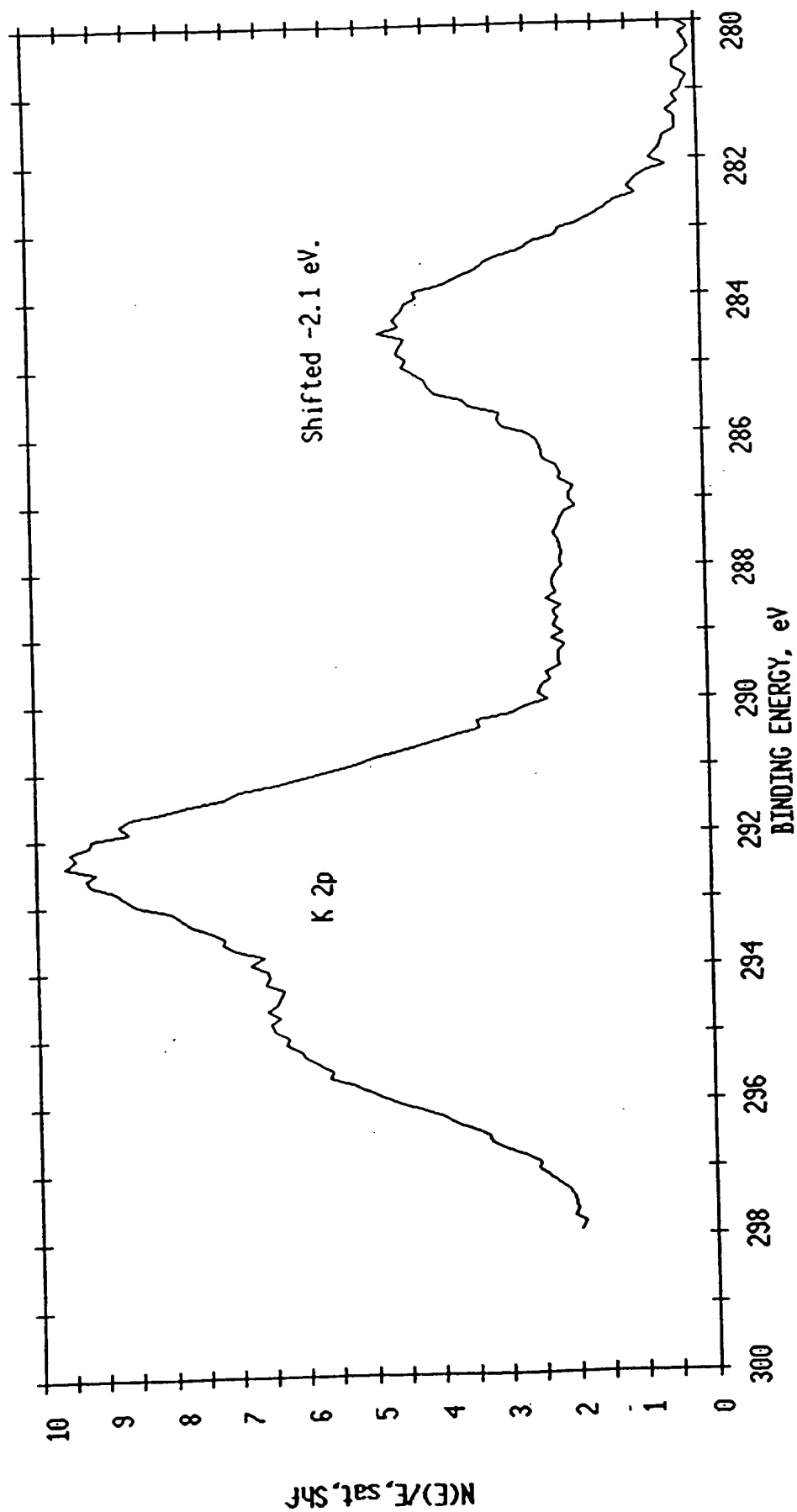




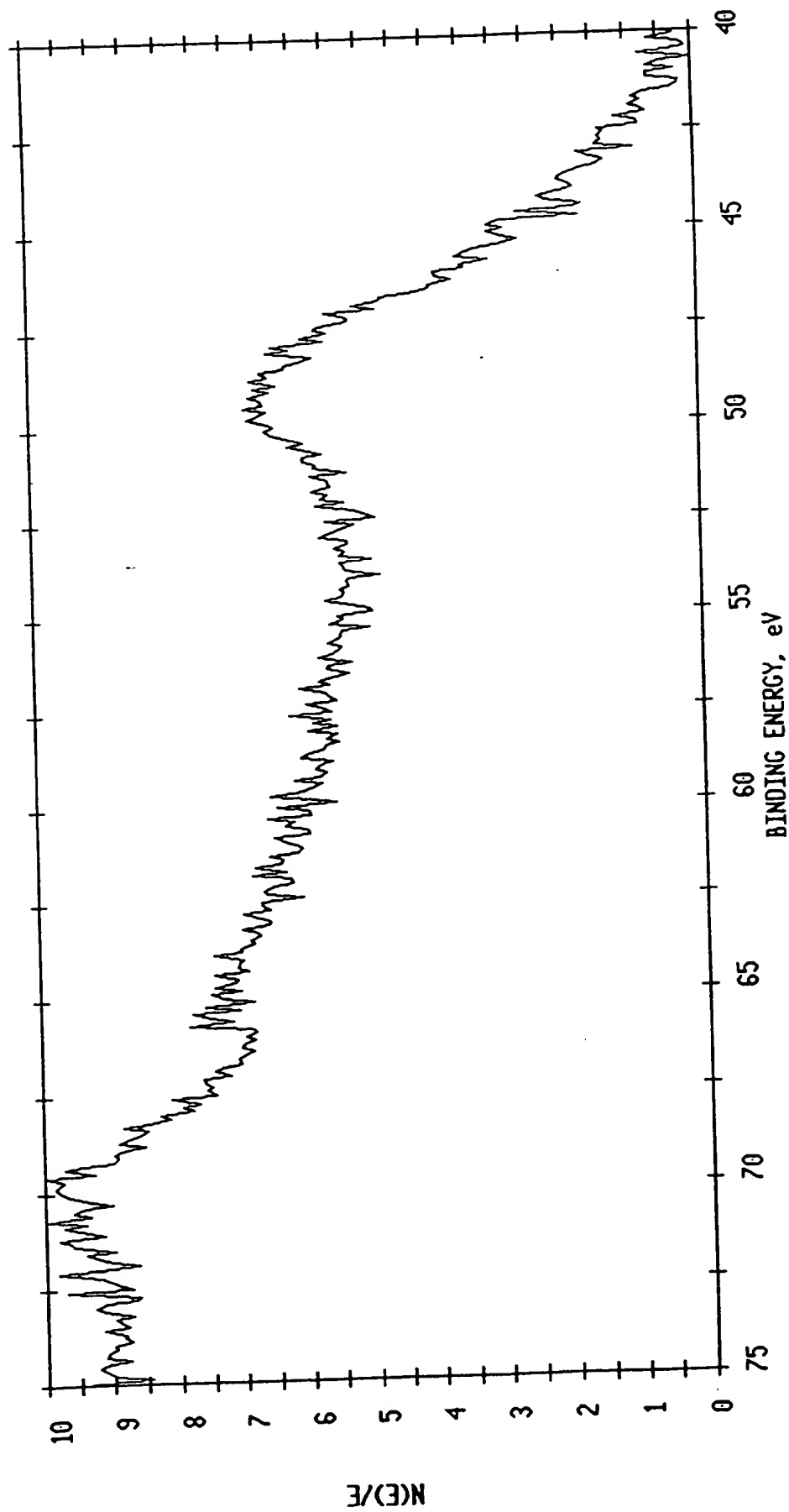
ESCA SURVEY 11/23/93 ANGLE= 15 deg ACQ TIME=29.36 min  
FILE: Nitest40 Ni foil after treatment for 5 days.  
SCALE FACTOR= 9.221 k c/s, OFFSET= 0.532 k c/s PASS ENERGY=178.950 eV Al 400 W



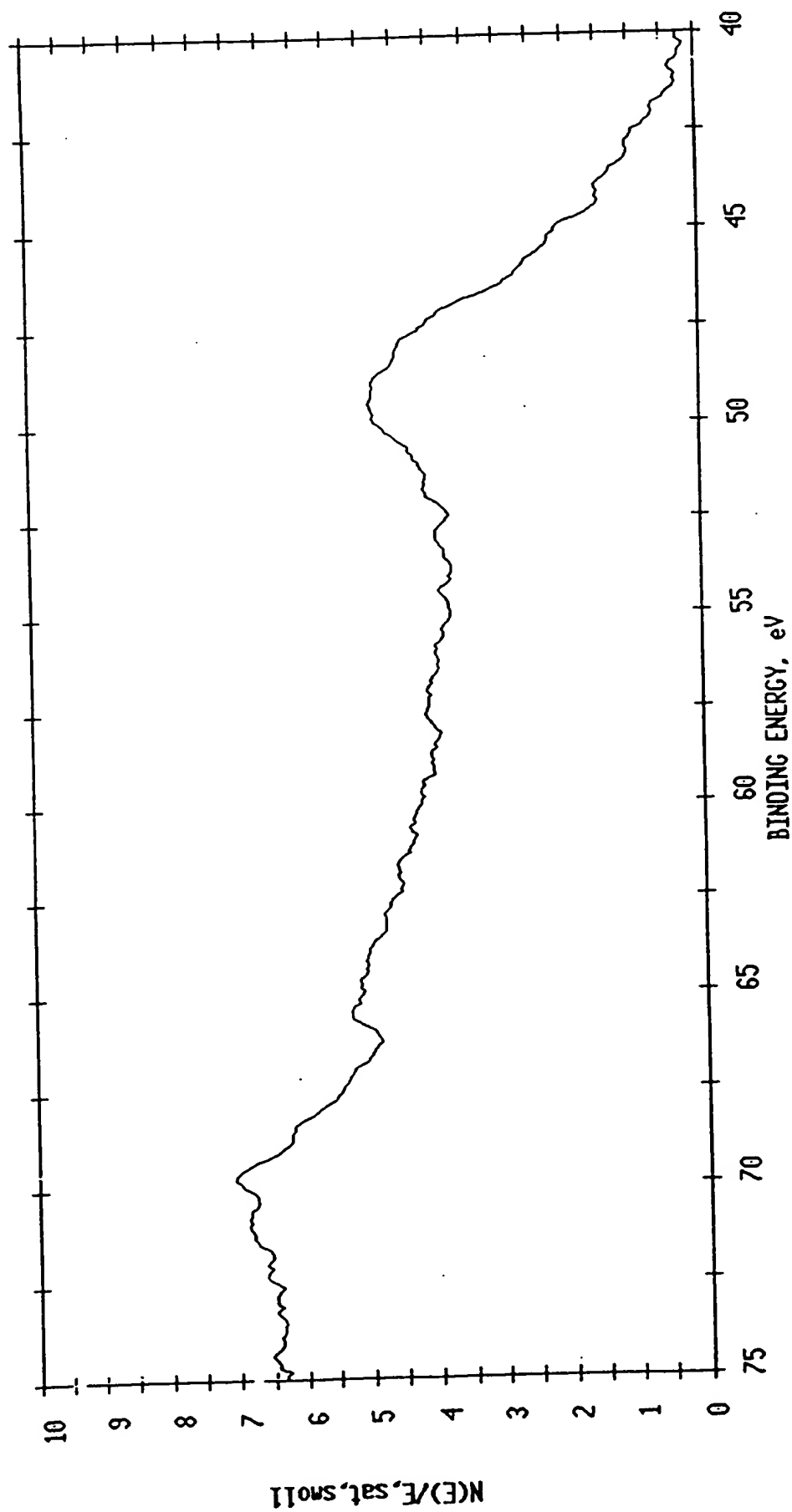
ESCA MULTIPLEX 11/23/93 EL=C1 REG 1 ANGLE= 15 deg ACQ TIME=2.51 min  
FILE: Nitest41 Ni foil after treatment for 5 days.  
SCALE FACTOR= 0.905 k c/s, OFFSET= 1.883 k c/s PASS ENERGY=143.050 eV Al 400 W



ESCA MULTIPLEX 11/23/93 EL= REG 2 ANGLE= 15 deg ACQ TIME=114.08 min  
FILE: Nitest41 Ni foil after treatment for 5 days.  
SCALE FACTOR= 0.029 k c/s, OFFSET= 0.855 k c/s PASS ENERGY=143.050 eV Al 400 W



ESCA MULTIPLEX 11/23/93 EL= REG 2 ANGLE= 15 deg ACO TIME=114.08 min  
FILE: Nitest41 Ni foil after treatment for 5 days.  
SCALE FACTOR= 0.039 k c/s, OFFSET= 0.755 k c/s PASS ENERGY=143.050 eV Al 400 W





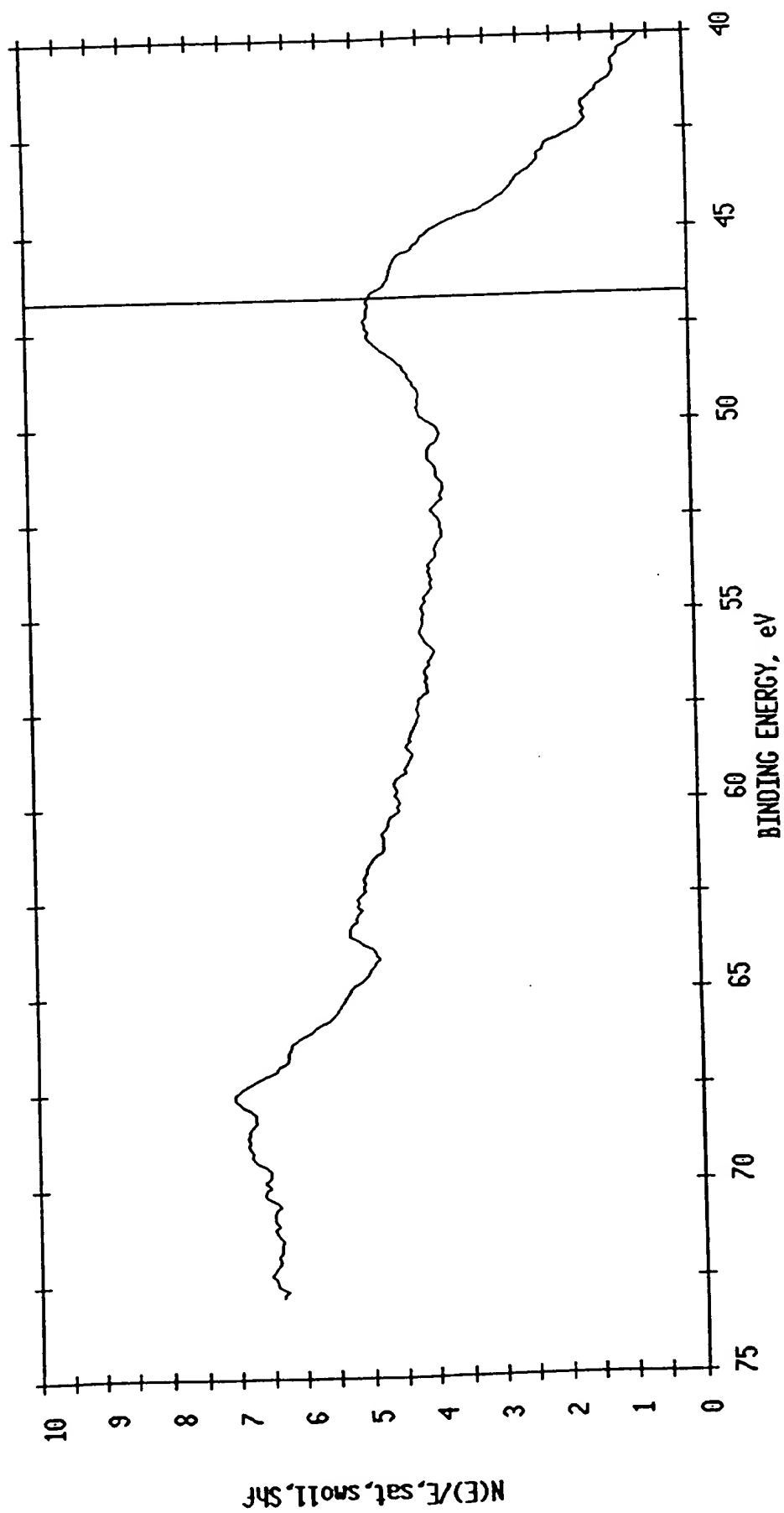
Cursor

Counts 18374

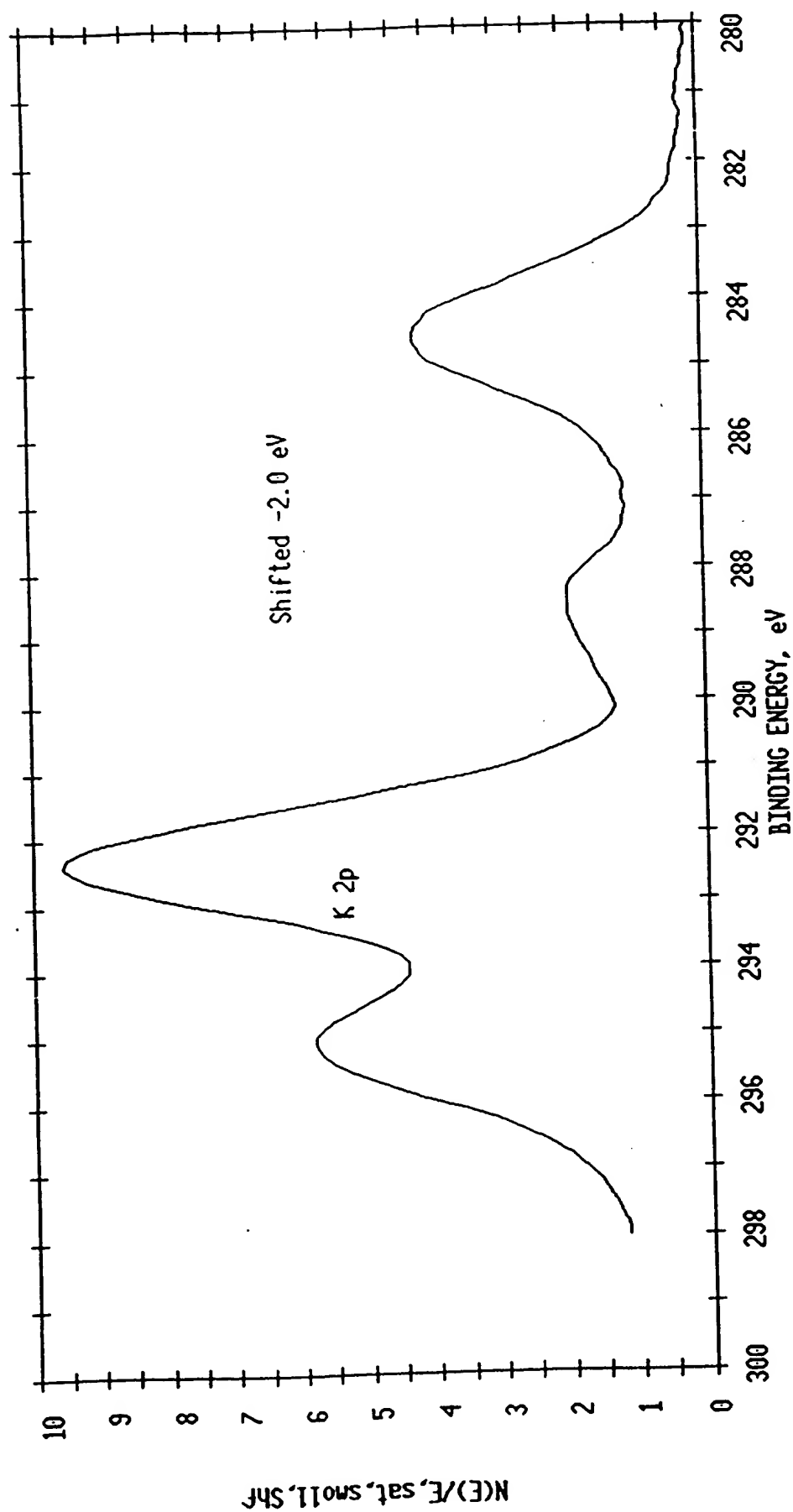
Counts/Sec 942

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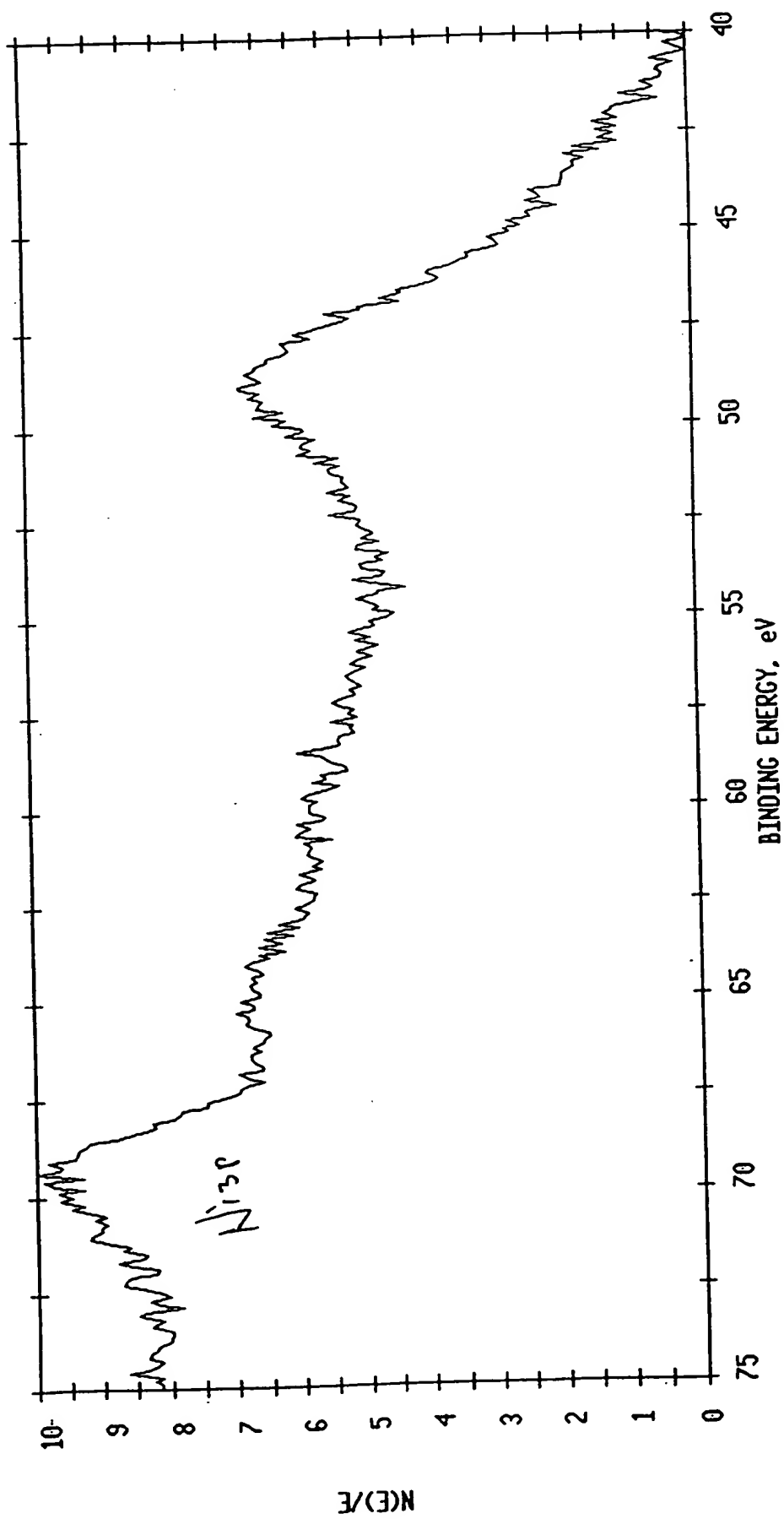
Energy (eV)



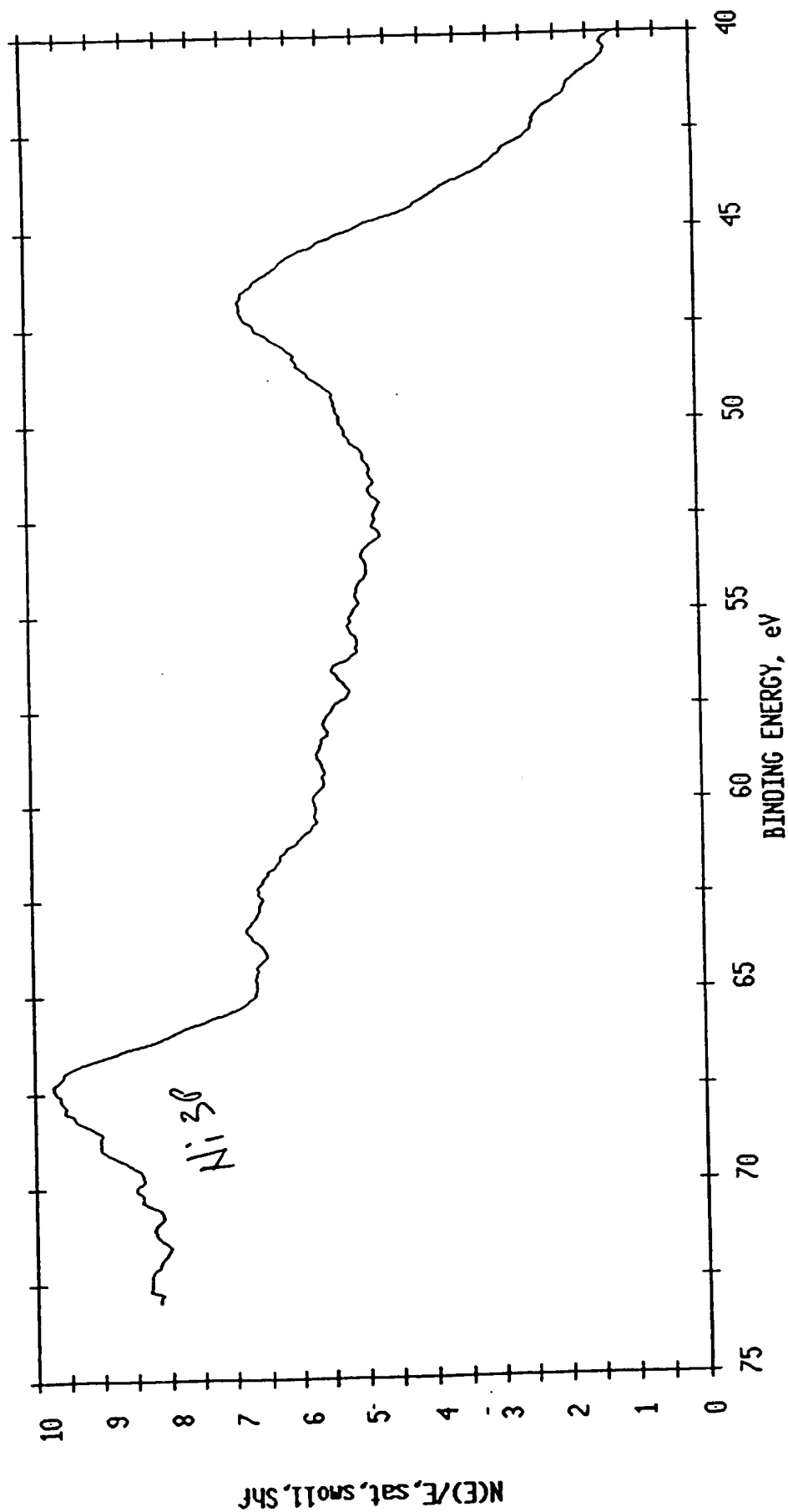
ESCA MULTIPLEX 11/23/93 EL=C1 REG 1 ANGLE= 15 deg ACO TIME=4.19 min  
FILE: Nitest42 Ni foil after treatment for 5 days.  
SCALE FACTOR= 0.378 k c/s, OFFSET= 0.689 k c/s PASS ENERGY= 71.550 eV Al 400 W



ESCA MULTIPLEX 11/23/93 EL= REG 2 ANGLE= 15 deg ACO TIME=609.86 min  
FILE: Nitest42 Ni foil after treatment for 5 days.  
SCALE FACTOR= 0.012 k c/s, OFFSET= 0.455 k c/s PASS ENERGY= 71.550 eV Al 400 W



ESCA MULTIPLEX 11/23/93 EL= REG 2 ANGLE= 15 deg ACQ TIME=609.86 min  
FILE: Nitest42 Ni foil after treatment for 5 days.  
SCALE FACTOR= 0.012 k c/s, OFFSET= 0.403 k c/s PASS ENERGY= 71.550 eV Al 400 W



Cursor

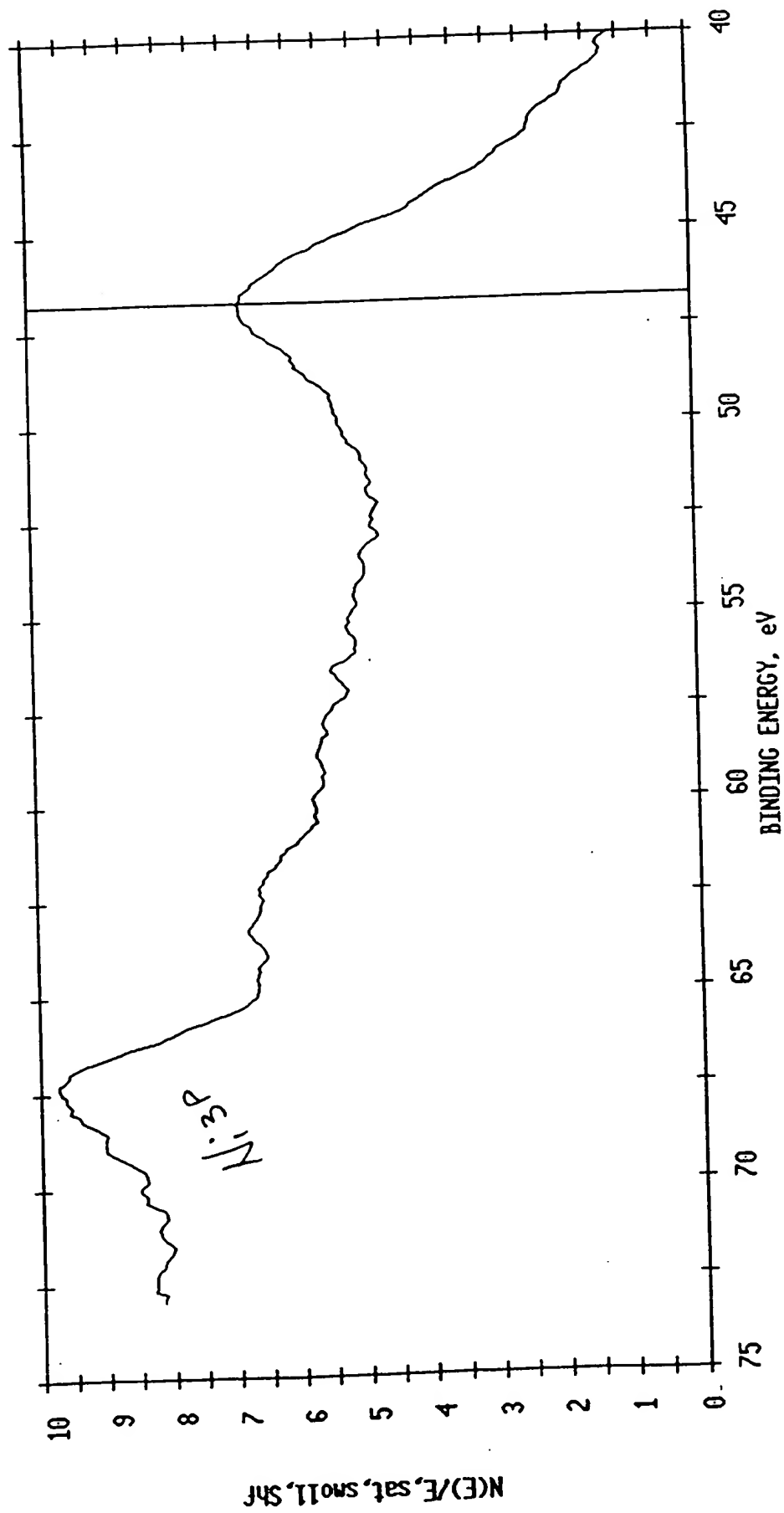
486

50692 Counts/Sec

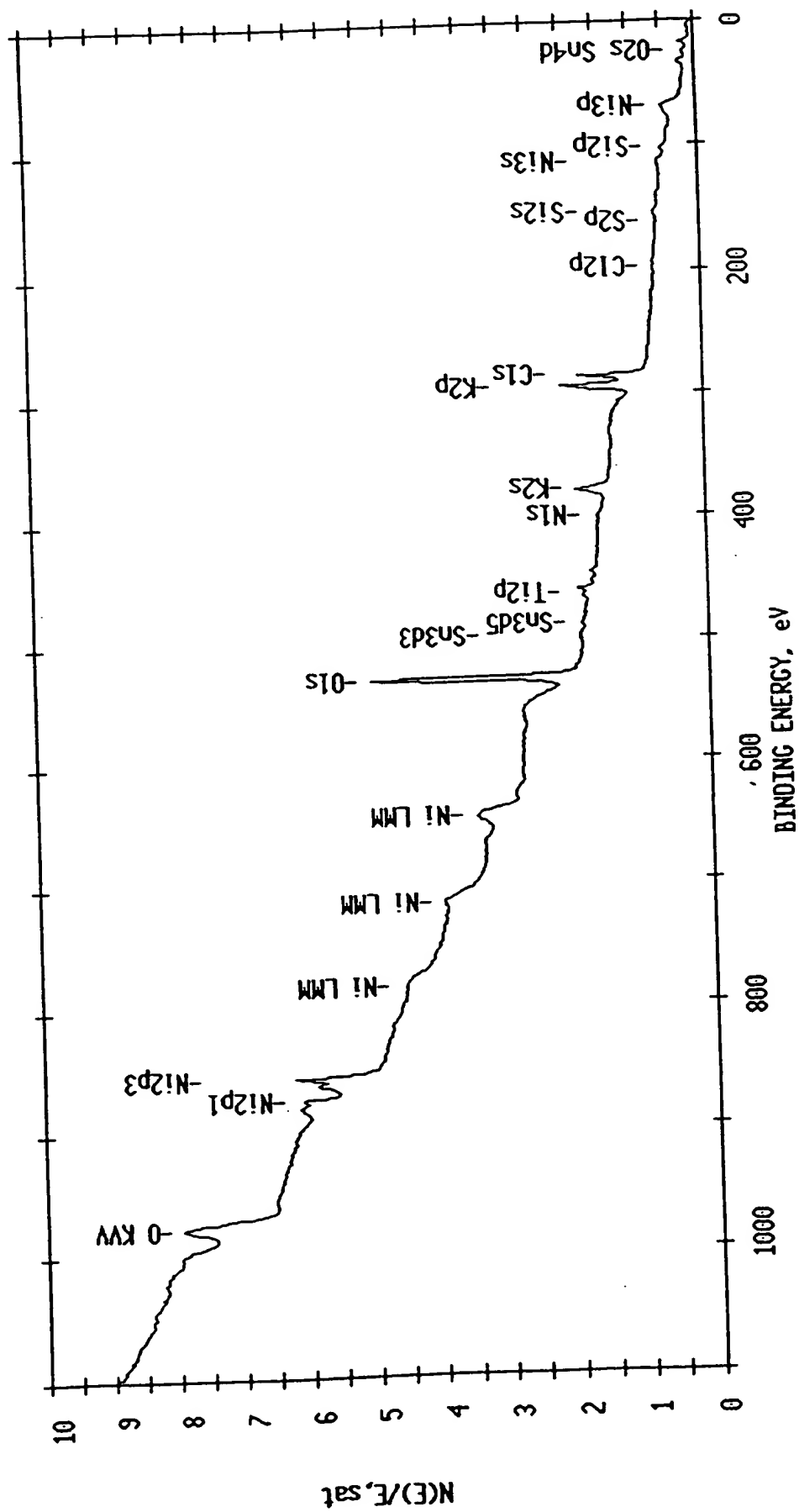
Counts

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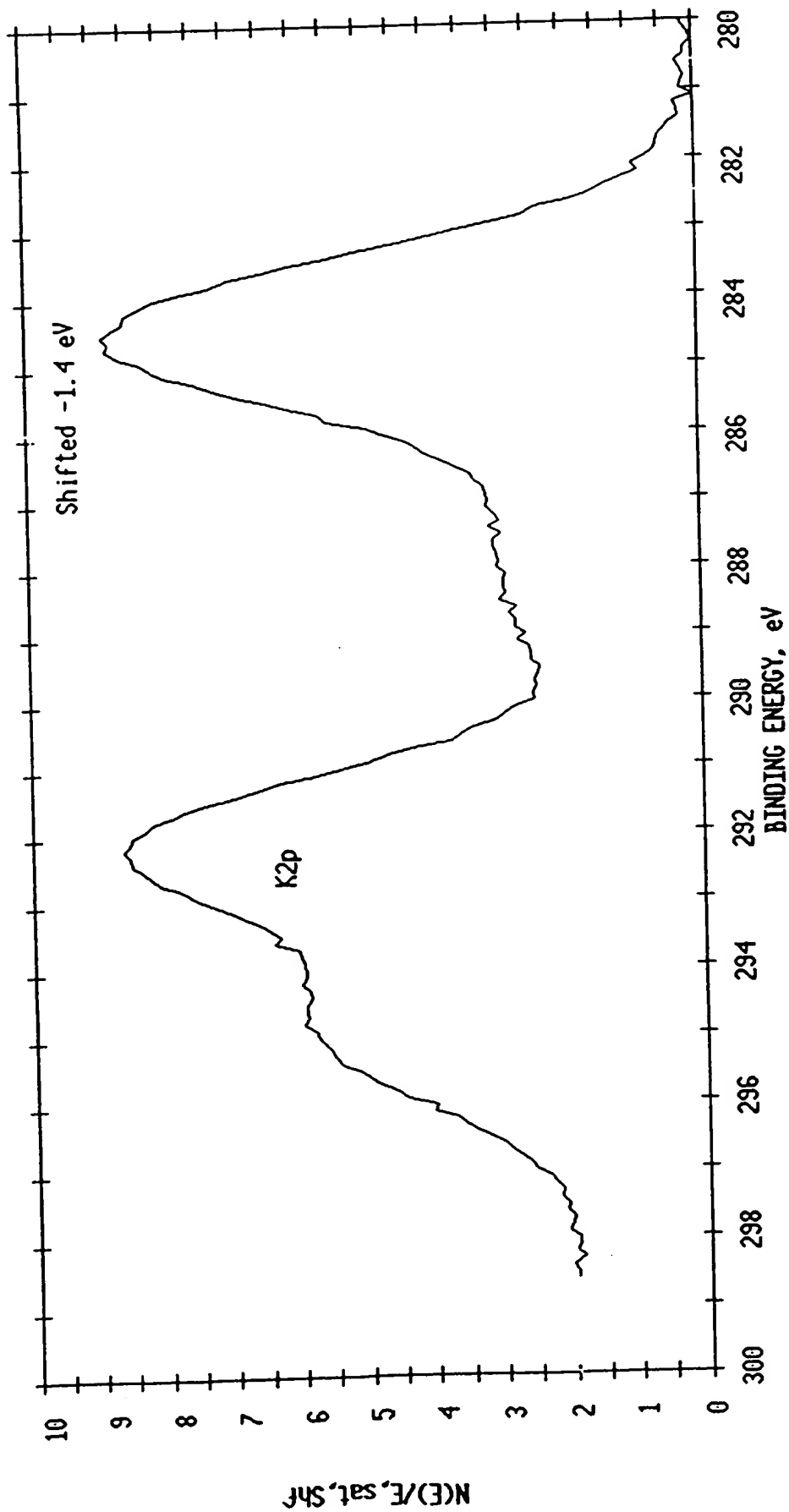
a Energy (eV)



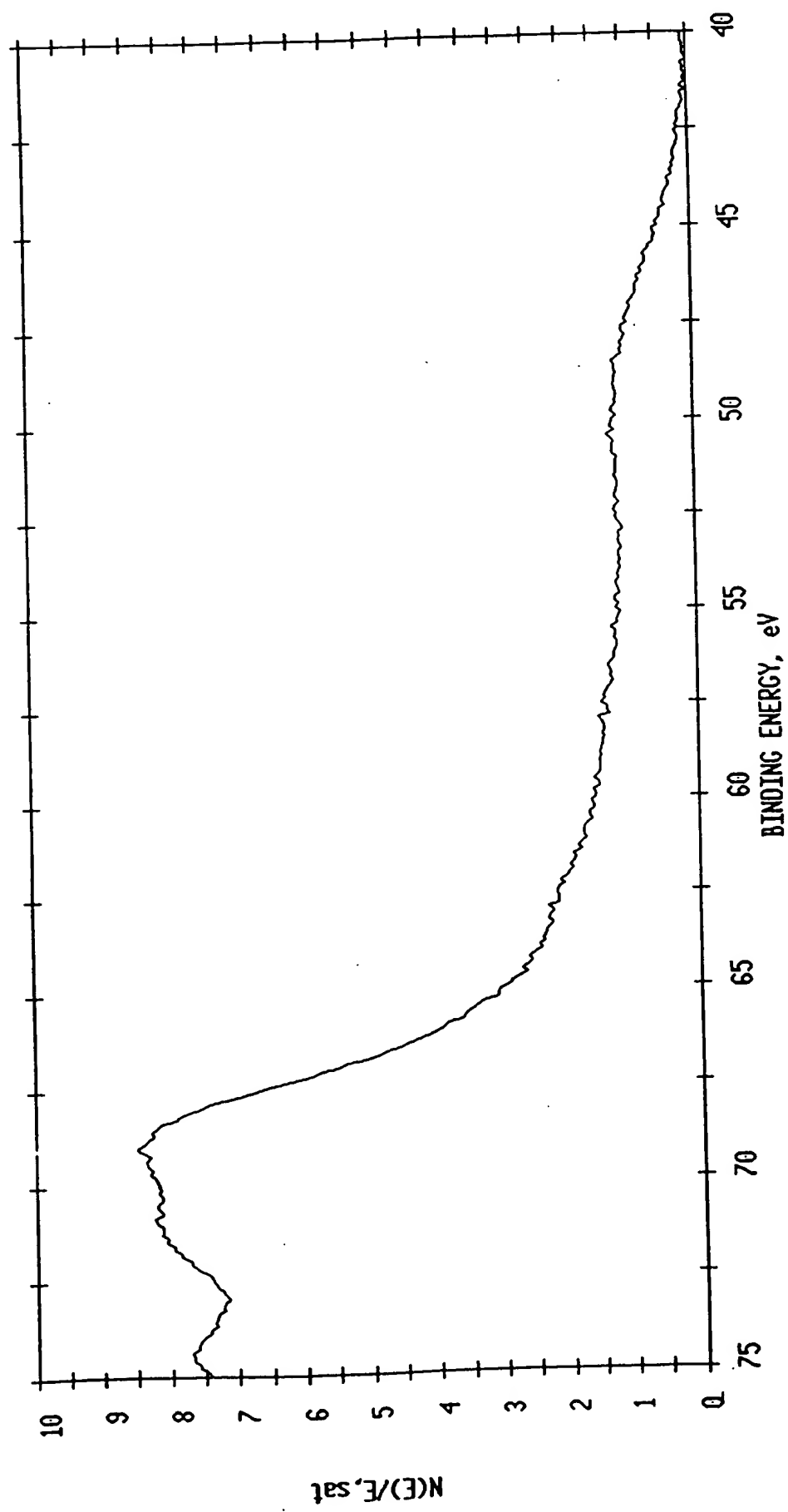
ESCA SURVEY 11/22/93 ANGLE= 15 deg ACQ TIME=29.36 min  
 FILE: Nitest31 Ni foil treated for 4 days (same foil as 24 hr treat.)  
 SCALE FACTOR= 44.544 k c/s, OFFSET= 4.987 k c/s PASS ENERGY=178.950 eV Al 400 W



ESCA MULTIPLEX 11/22/93 EL=C1 REG 1 ANGLE= 15 deg ACQ TIME=1.67 min  
FILE: Nitest30 Ni foil treated for 4 days (same foil as 24 hr treat.)  
SCALE FACTOR= 4.250 k c/s, OFFSET= 25.454 k c/s PASS ENERGY=143.050 eV Al 400 W

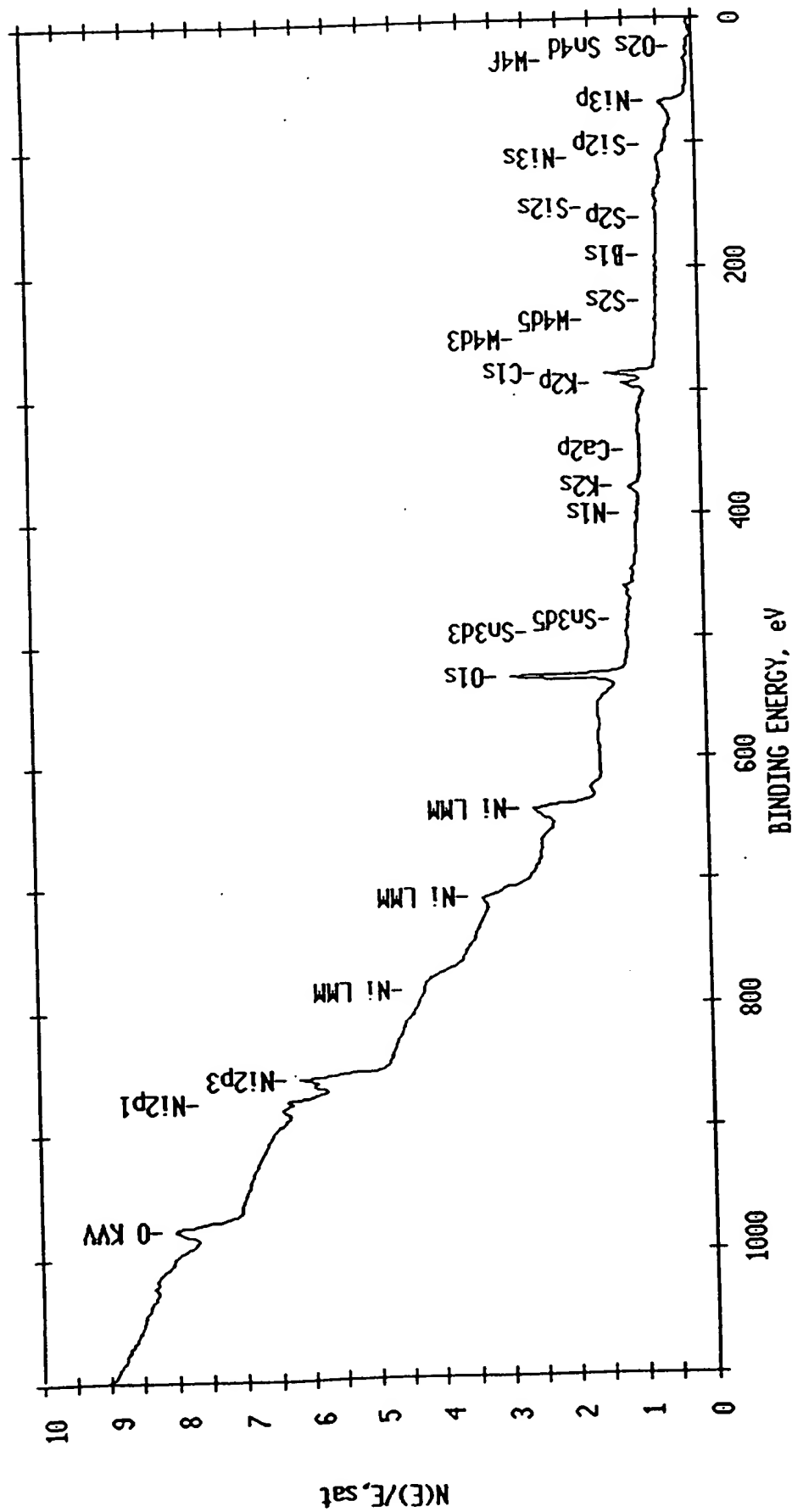


ESCA MULTIPLEX 11/22/93 EL= REG 2 ANGLE= 15 deg ACO TIME=46.80 min  
FILE: Nitest30 Ni foil treated for 4 days (same foil as 24 hr treat.)  
SCALE FACTOR= 1.109 k c/s, OFFSET= 7.432 k c/s PASS ENERGY=143.050 eV Al 400 W





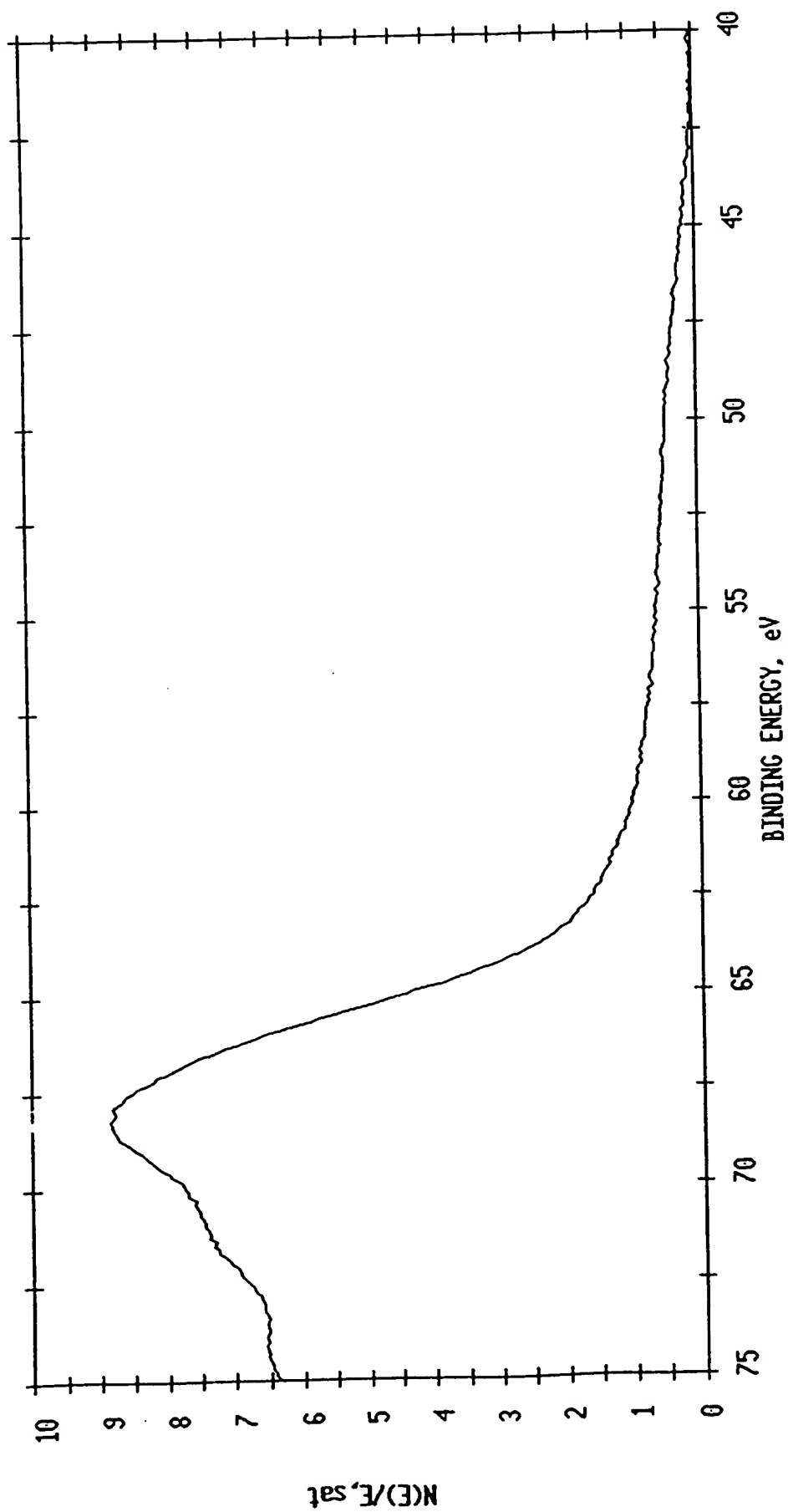
ESCA SURVEY 11/19/93 ANGLE= 15 deg ACQ TIME=29.36 min  
 FILE: Nitest26 Ni foil treated in lab for 24 hr. As received.  
 SCALE FACTOR= 64.347 k c/s, OFFSET= 8.234 k c/s PASS ENERGY=178.950 eV Al 400 W



ESCA MULTIPLEX 11/19/93 EL= REG 2 ANGLE= 15 deg ACO TIME=84.83 min

FILE: Nitest25 Ni foil treated in lab for 24 hr. As received.

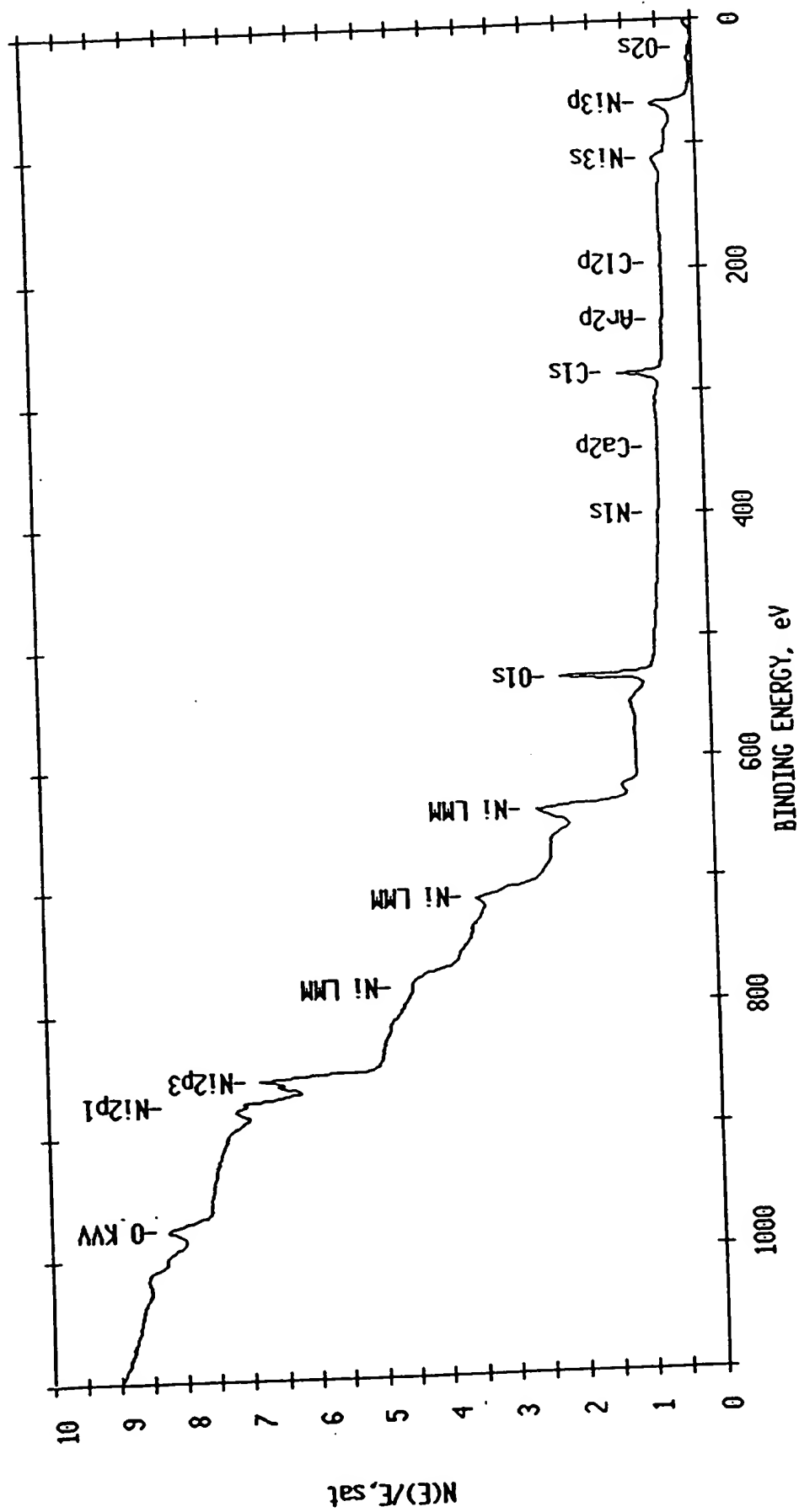
SCALE FACTOR= 1.920 k c/s, OFFSET= 8.515 k c/s PASS ENERGY=143.050 eV Al 400 W



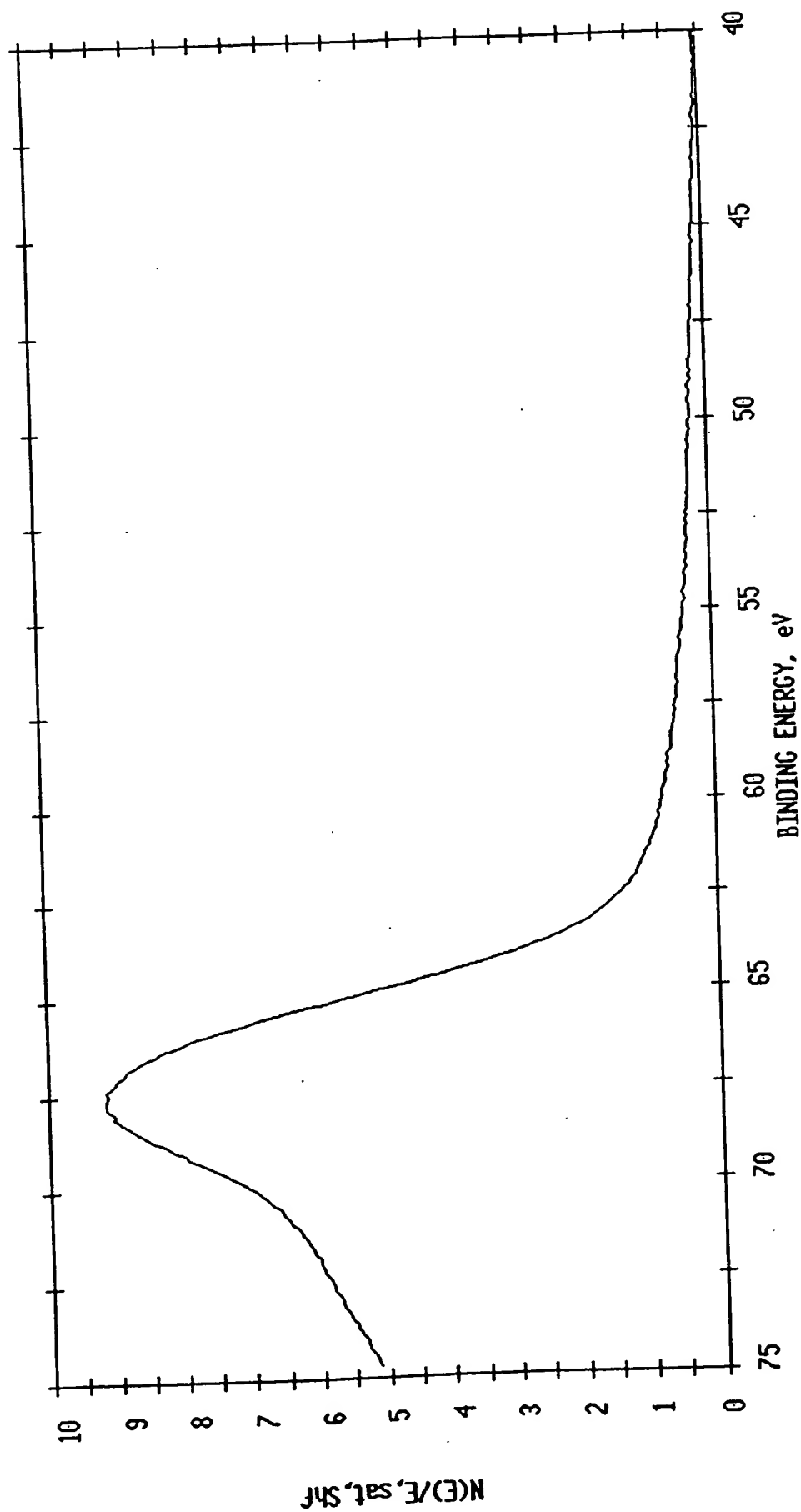
ESCA SURVEY 11/18/93 ANGLE= 15 deg ACO TIME=29.36 min

FILE: Nitest23 Ni foil untreated. as received.

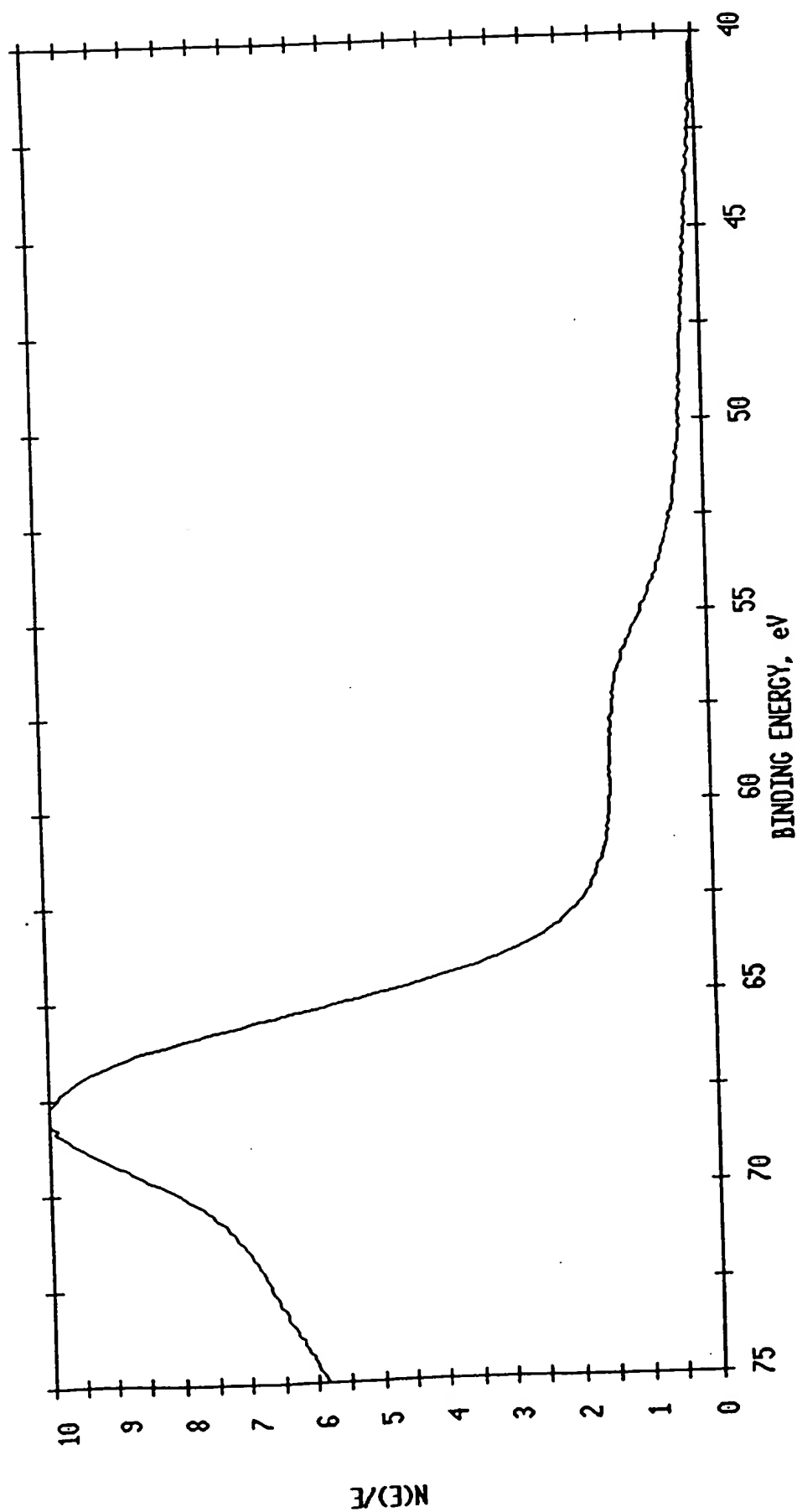
SCALE FACTOR= 80.815 k c/s, OFFSET= 11.386 k c/s PASS ENERGY=178.950 eV Al 400 W



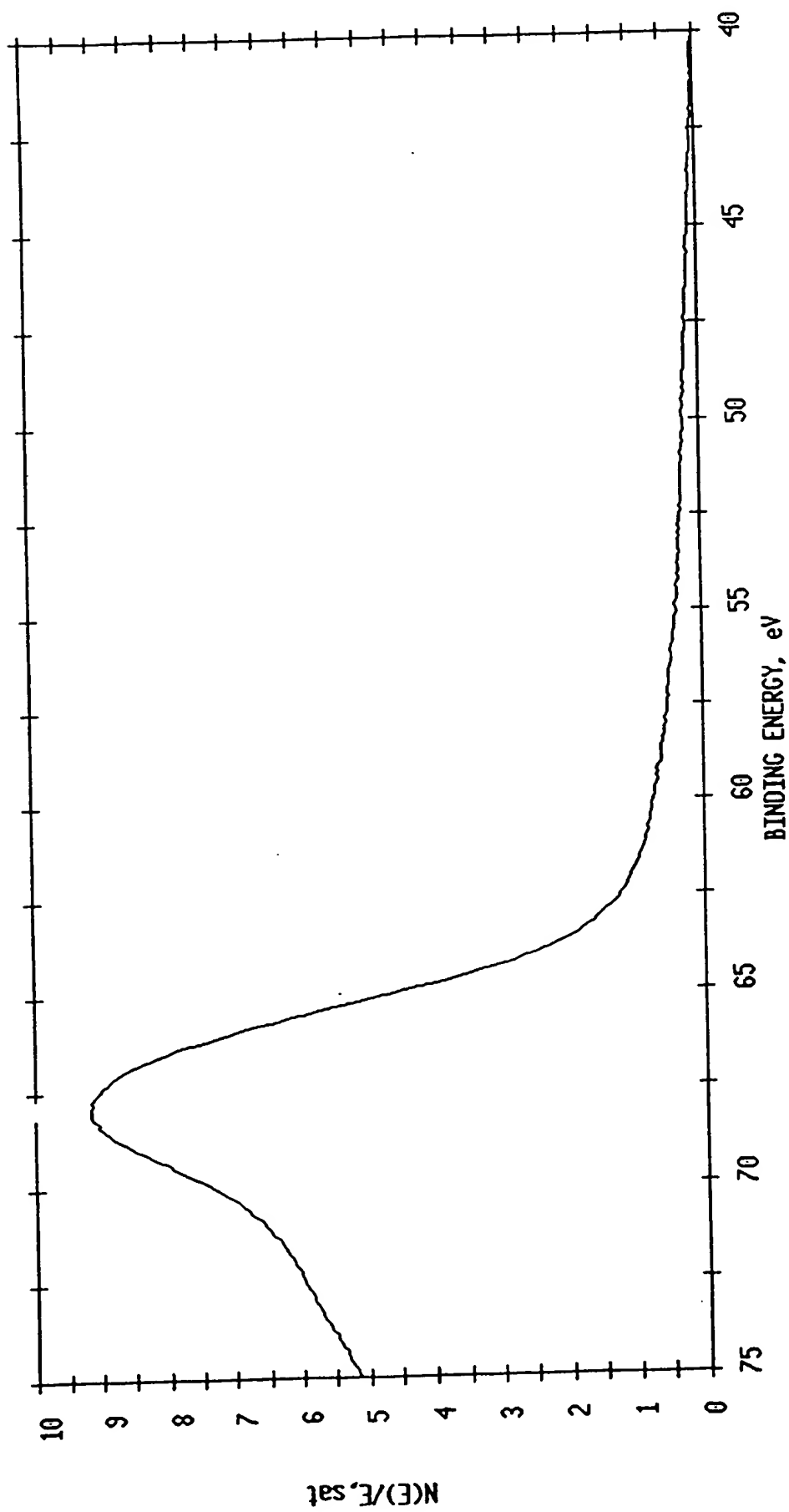
ESCA MULTIPLEX 11/18/93 EL= REG 2 ANGLE= 15 deg ACO TIME=76.05 min  
FILE: Nitest22 Ni foil untreated. as received.  
SCALE FACTOR= 3.401 k c/s, OFFSET= 9.545 k c/s PASS ENERGY=143.050 eV Al 400 W



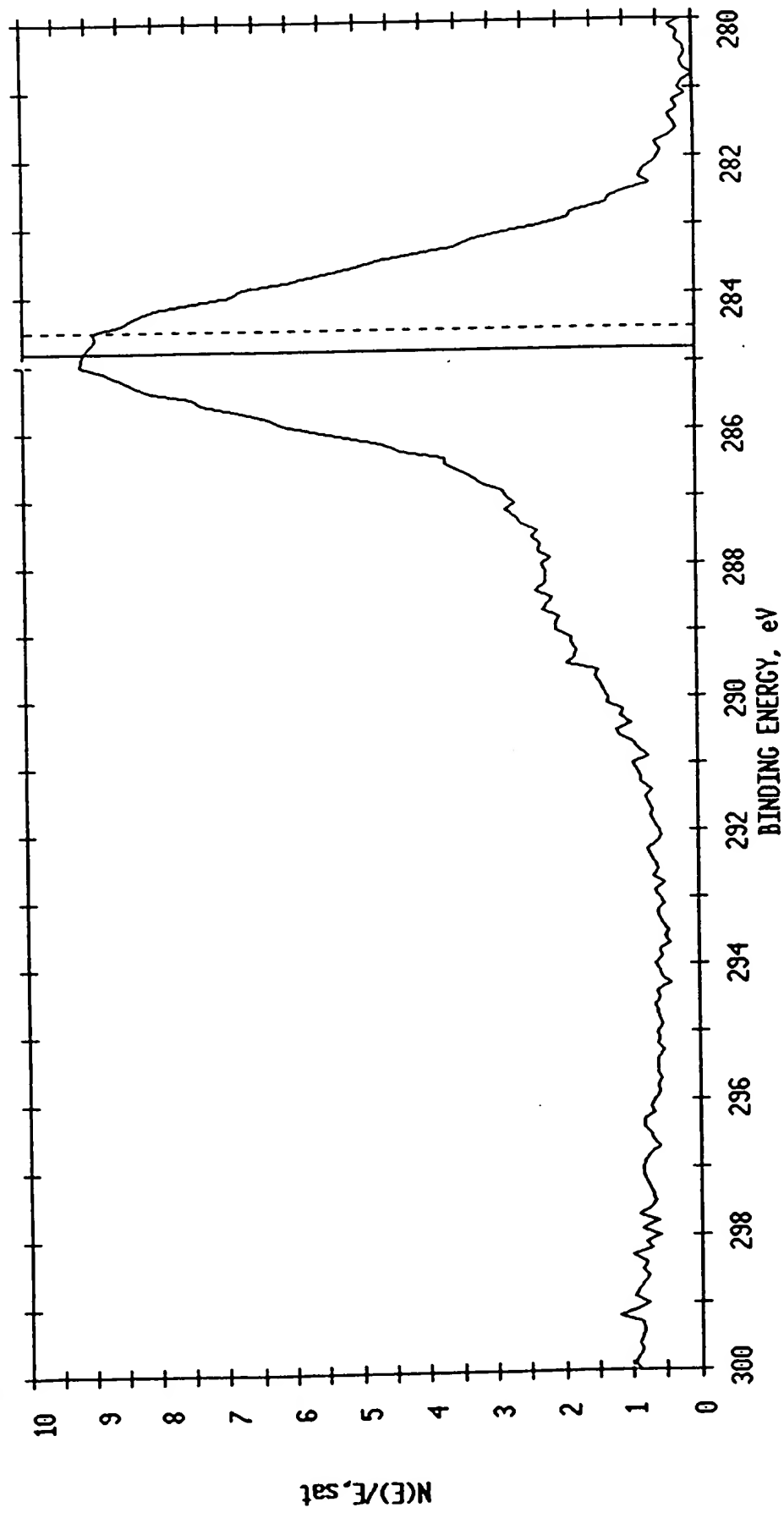
ESCA MULTIPLEX 11/18/93 EL= REG 2 ANGLE= 15 deg ACQ TIME=76.05 min  
FILE: Nitest22 Ni foil untreated. as received.  
SCALE FACTOR= 3.278 k c/s, OFFSET= 10.778 k c/s PASS ENERGY=143.050 eV Al 400 W



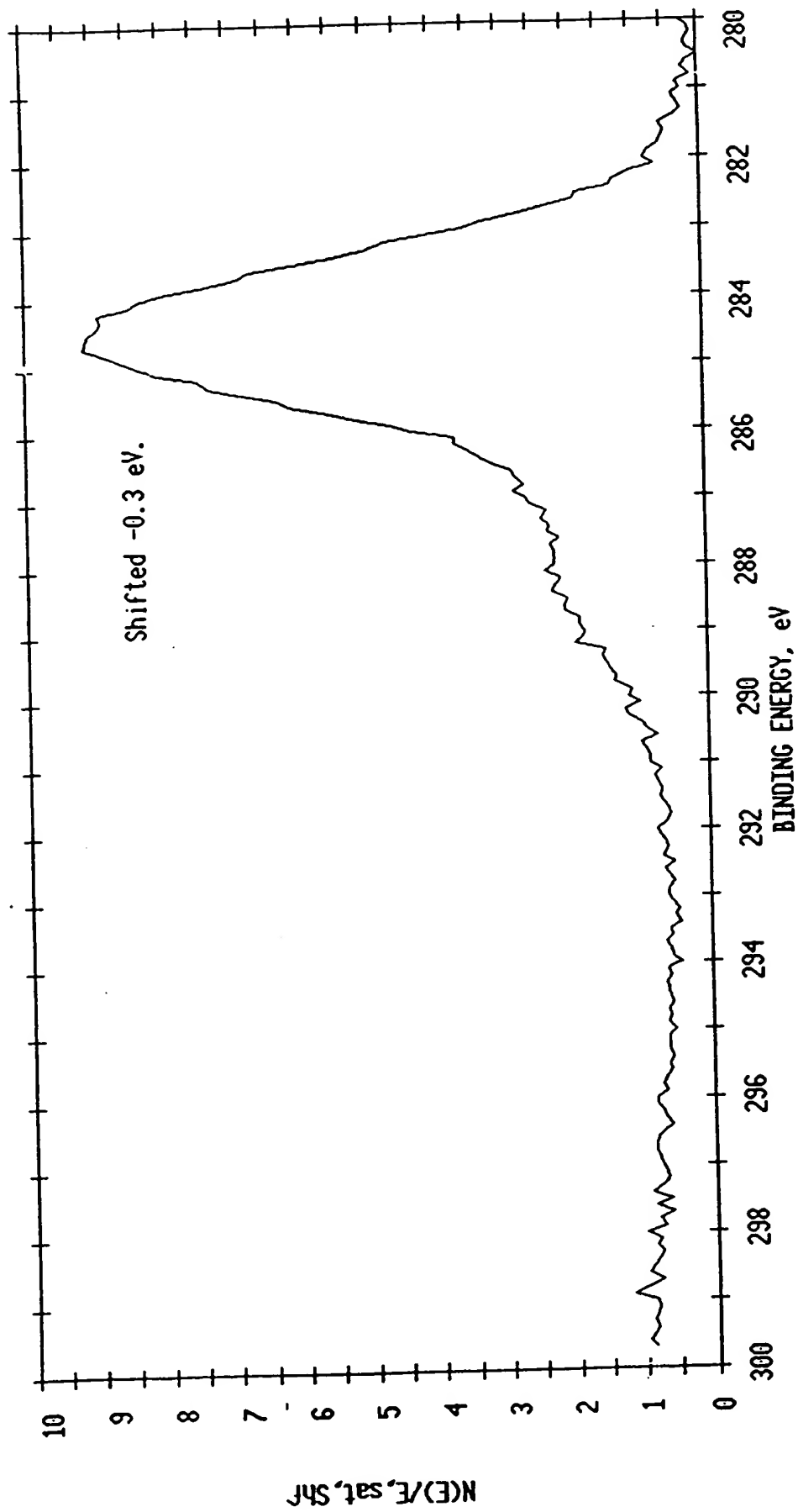
ESCA MULTIPLEX 11/18/93 EL= REG 2 ANGLE= 15 deg ACQ TIME=76.05 min  
FILE: Nitest22 Ni foil untreated. as received.  
SCALE FACTOR= 3.401 k c/s, OFFSET= 9.545 k c/s PASS ENERGY=143.050 eV Al 400 W



	Shift
a Initial Energy Point	284.800
b Shifted Energy Point	284.500
c Offset	-0.300

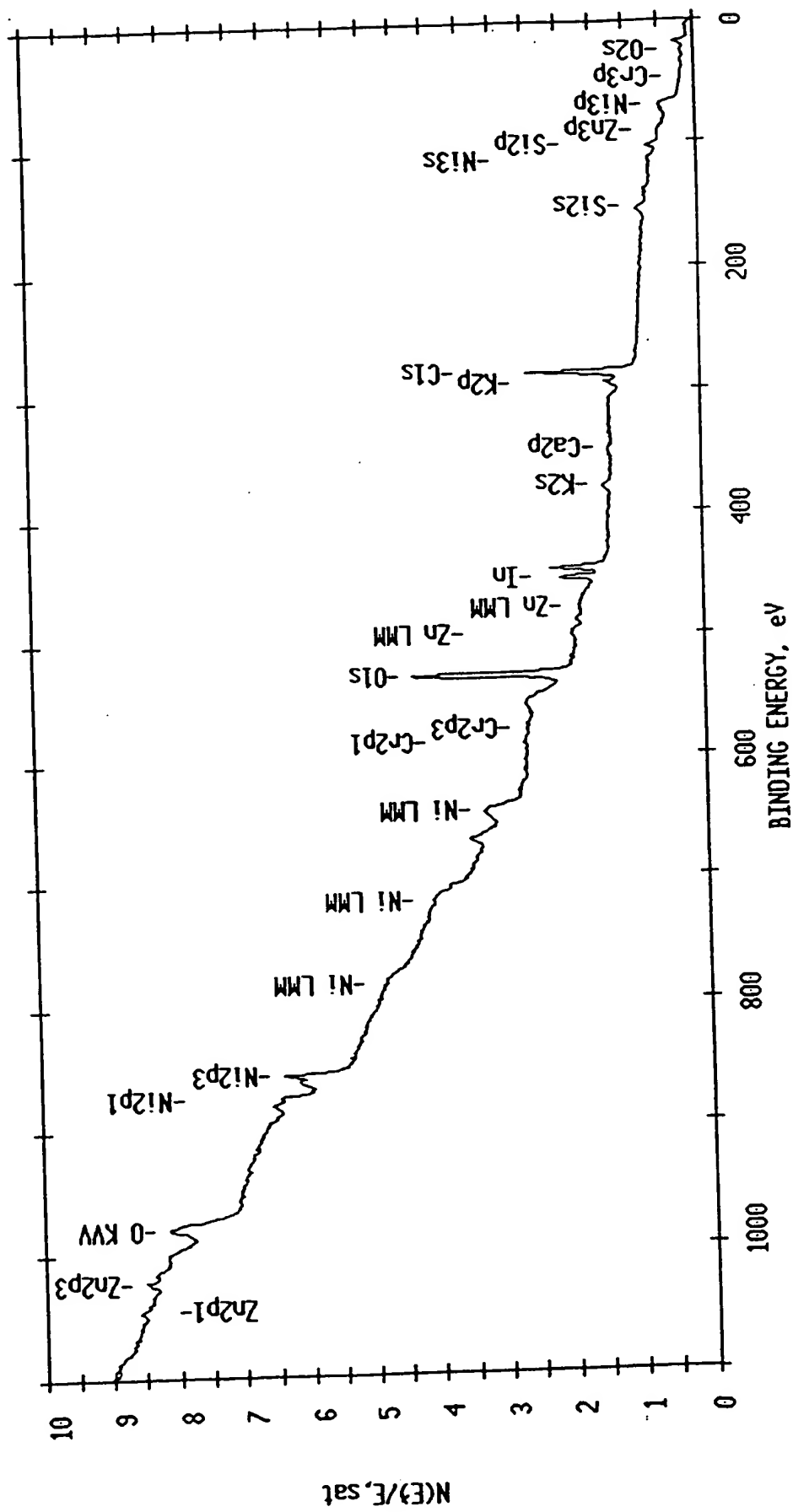


ESCA MULTIPLEX 11/18/93 EL=C1 REG 1 ANGLE= 15 deg ACO TIME=0.84 min  
FILE: Nitest22 Ni foil untreated. as received.  
SCALE FACTOR= 5.007 k c/s, OFFSET= 37.388 k c/s PASS ENERGY=143.050 eV Al 400 W

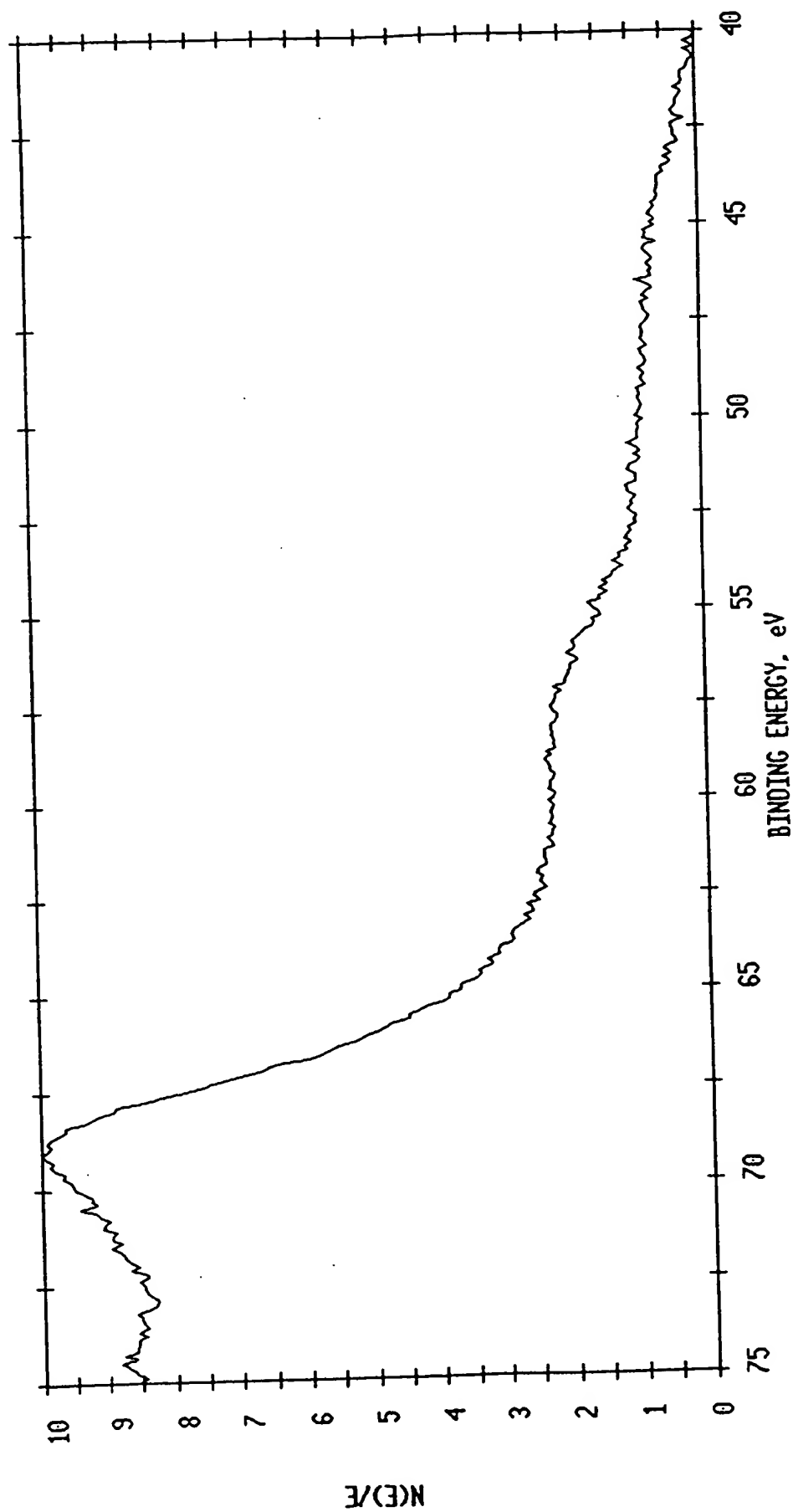




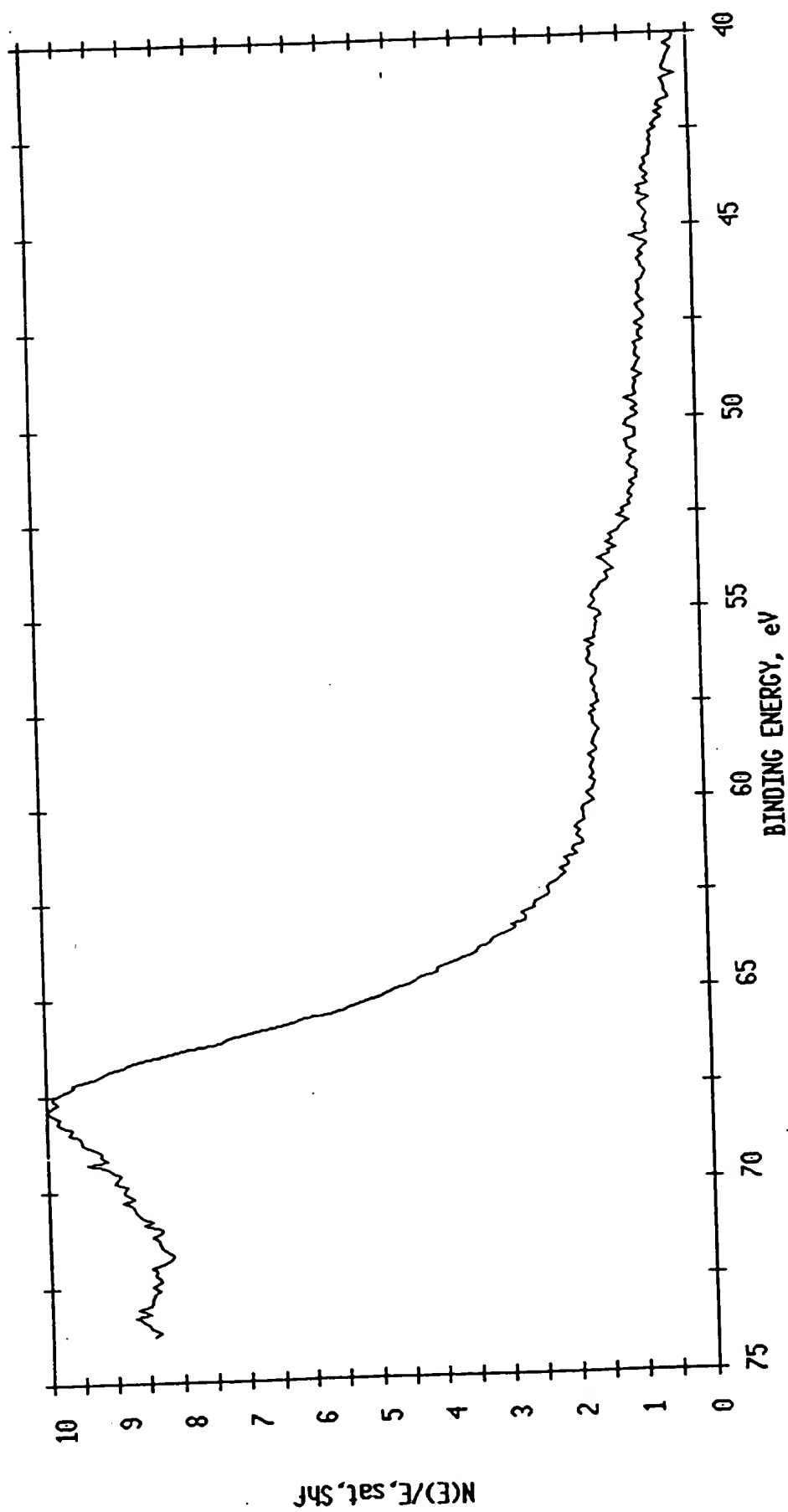
ESCA SURVEY 11/18/93 ANGLE= 15 deg ACO TIME=29.36 min  
 FILE: Nitest21 Ni wire processed in lab. as received.  
 SCALE FACTOR= 12.496 k c/s, OFFSET= 1.542 k c/s PASS ENERGY=178.950 eV Al 400 W



ESCA MULTIPLEX 11/18/93 EL= REG 2 ANGLE= 15 deg ACO TIME=67.28 min  
FILE: Nitest20 Ni wire processed in lab. as received.  
SCALE FACTOR= 0.301 k c/s, OFFSET= 2.742 k c/s PASS ENERGY=143.050 eV Al 400 W

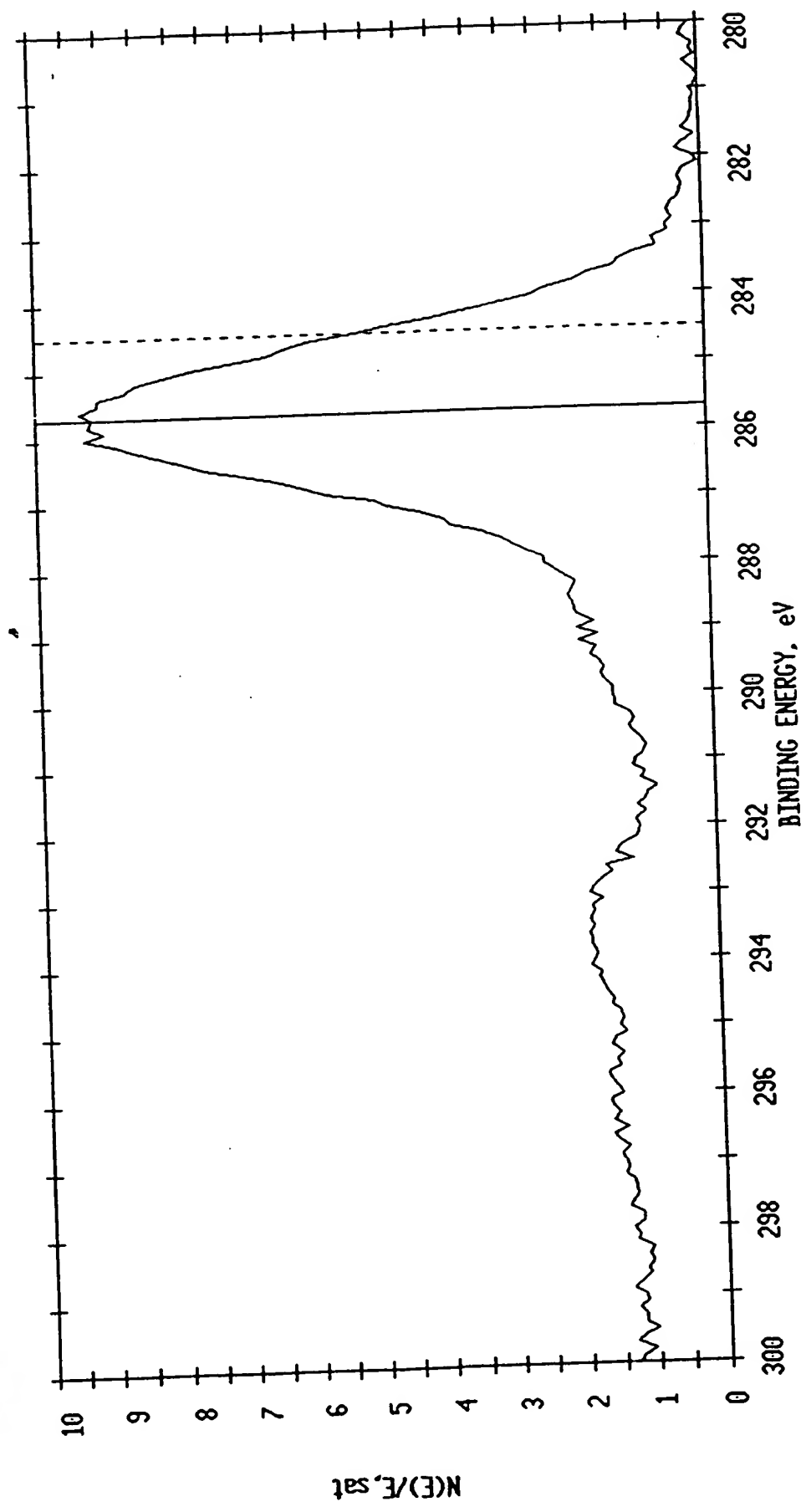


ESCA MULTIPLEX 11/18/93 EL= REG 2 ANGLE= 15 deg ACO TIME=67.28 min  
FILE: Nitest20 Ni wire processed in lab. as received.  
SCALE FACTOR= 0.280 k c/s, OFFSET= 2.436 k c/s PASS ENERGY=143.050 eV Al 400 W

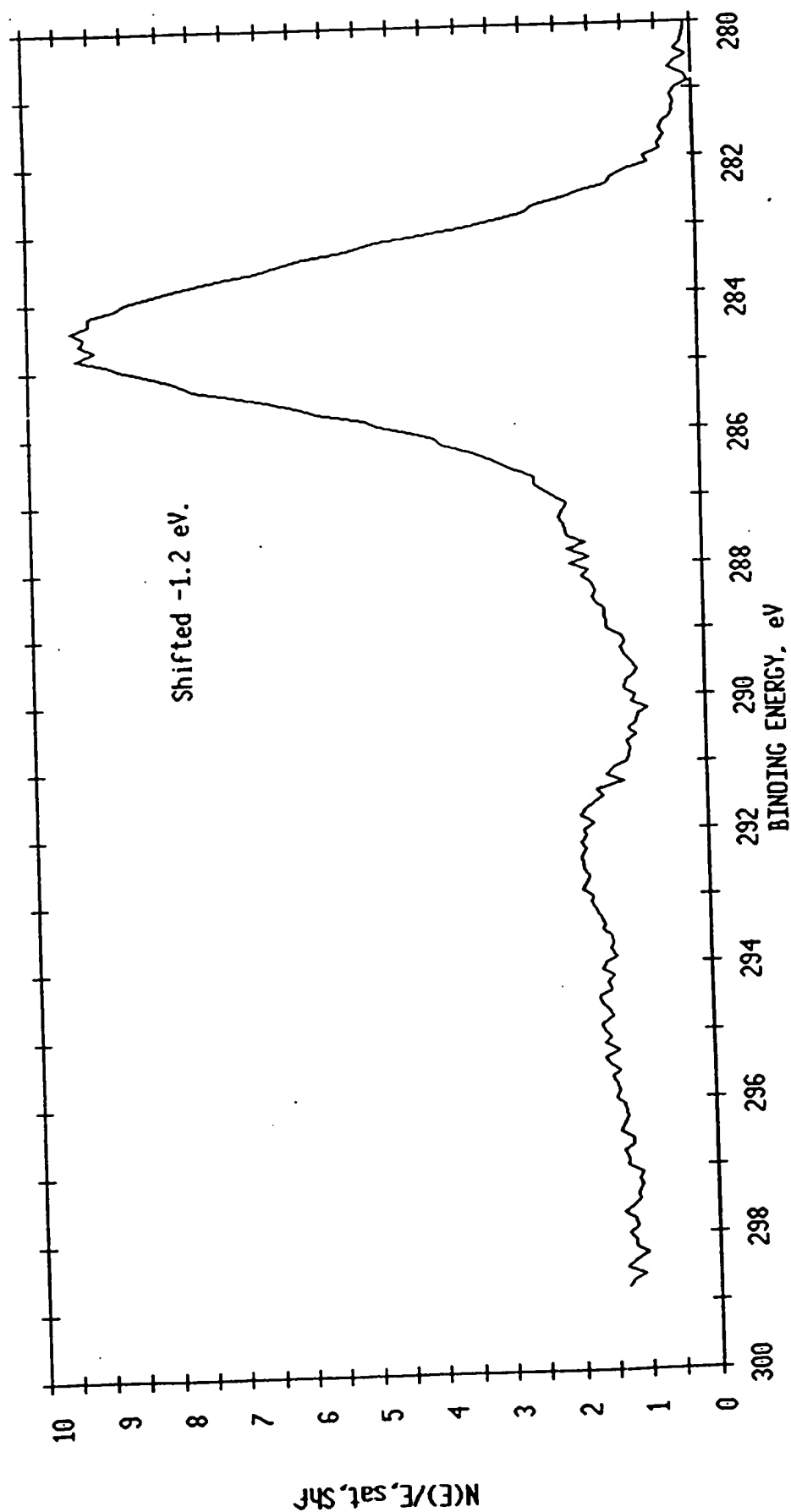


File Nit 20

	Shift
a	Initial Energy Point
b	Shifted Energy Point
c	Offset



ESCA MULTIPLEX 11/18/93 EL=C1 REG 1 ANGLE= 15 deg ACO TIME=1.67 min  
FILE: Nitest20 Ni wire processed in lab. as received.  
SCALE FACTOR= 1.789 k c/s, OFFSET= 8.206 k c/s PASS ENERGY=143.050 eV Al 400 W



CURSOR

2849

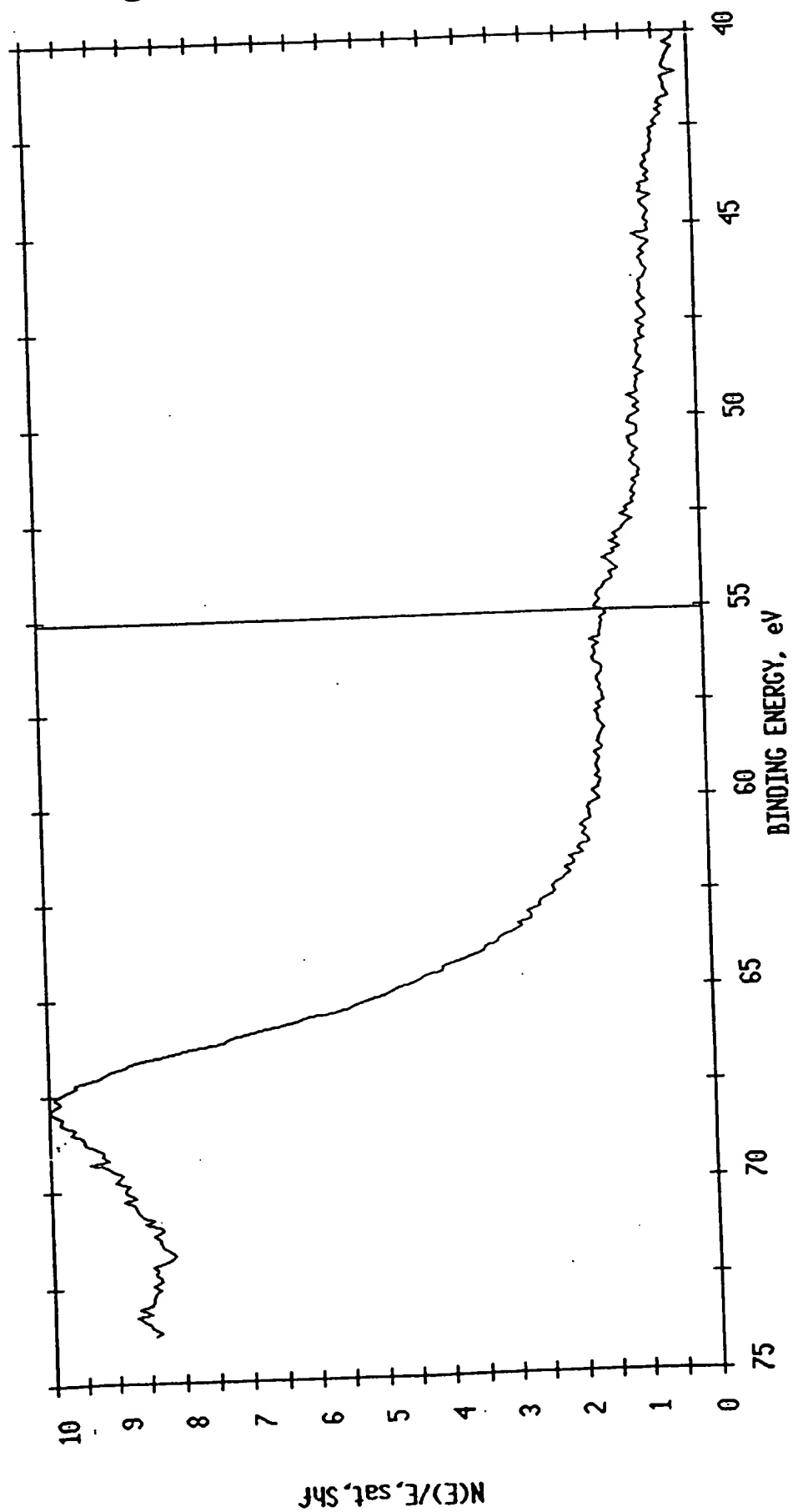
Counts/Sec

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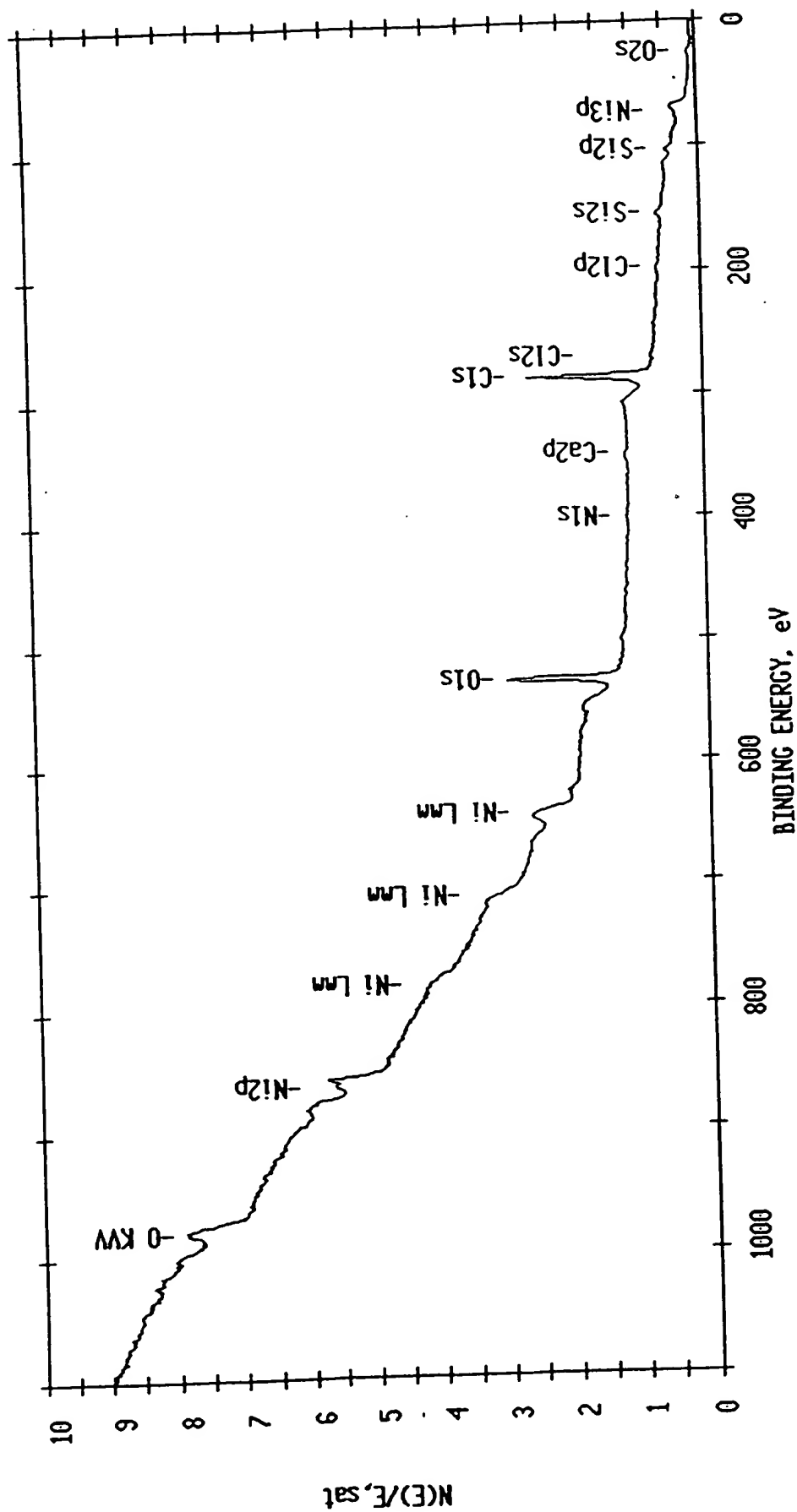
Counts

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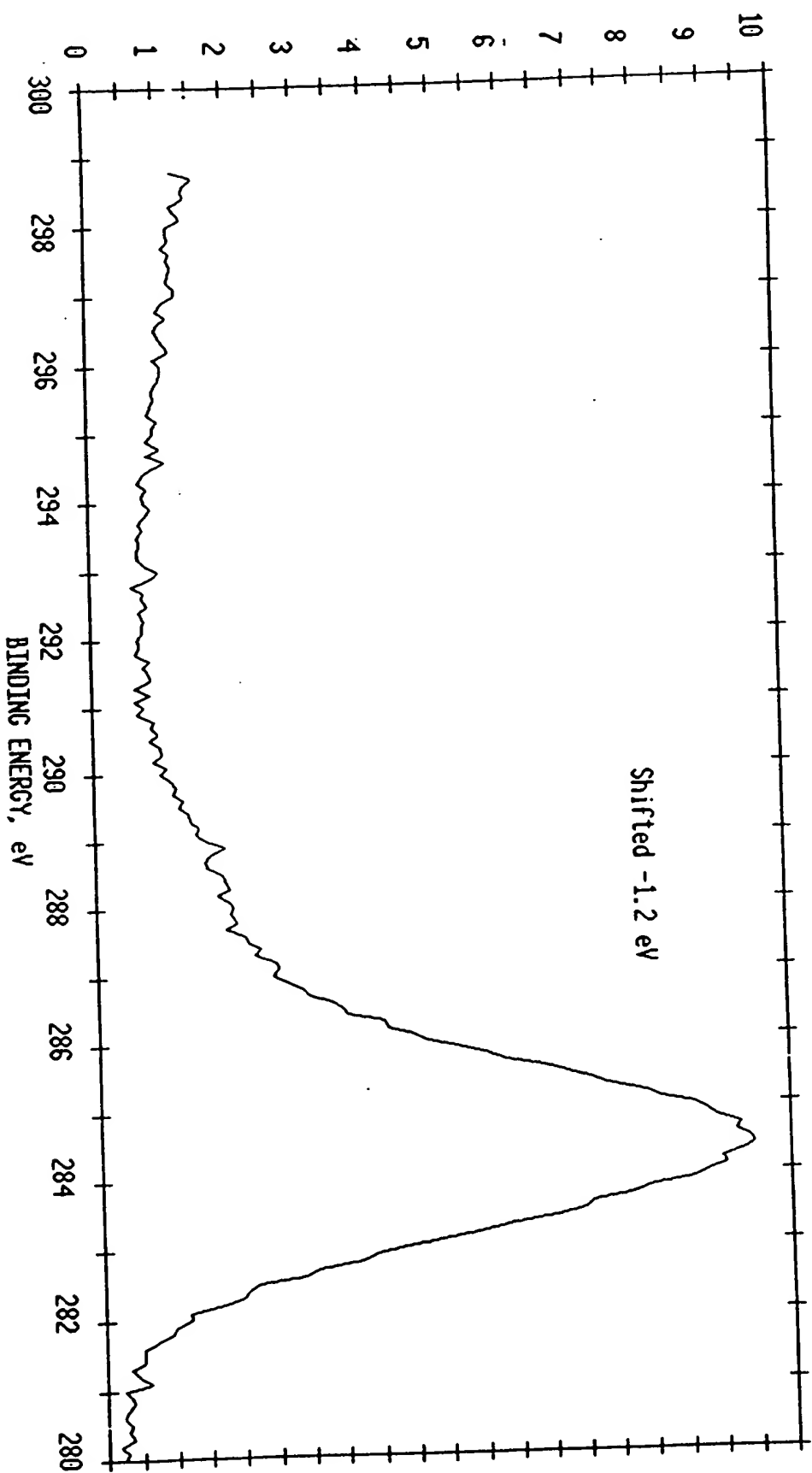
a Energy (eV)



ESCA SURVEY 11/22/93 ANGLE= 15 deg ACO TIME=29.36 min  
FILE: Nitest33 2nd Ni wire treated prior to IRC.  
SCALE FACTOR= 11.123 k c/s, OFFSET= 1.299 k c/s PASS ENERGY=178.950 eV Al 400 W

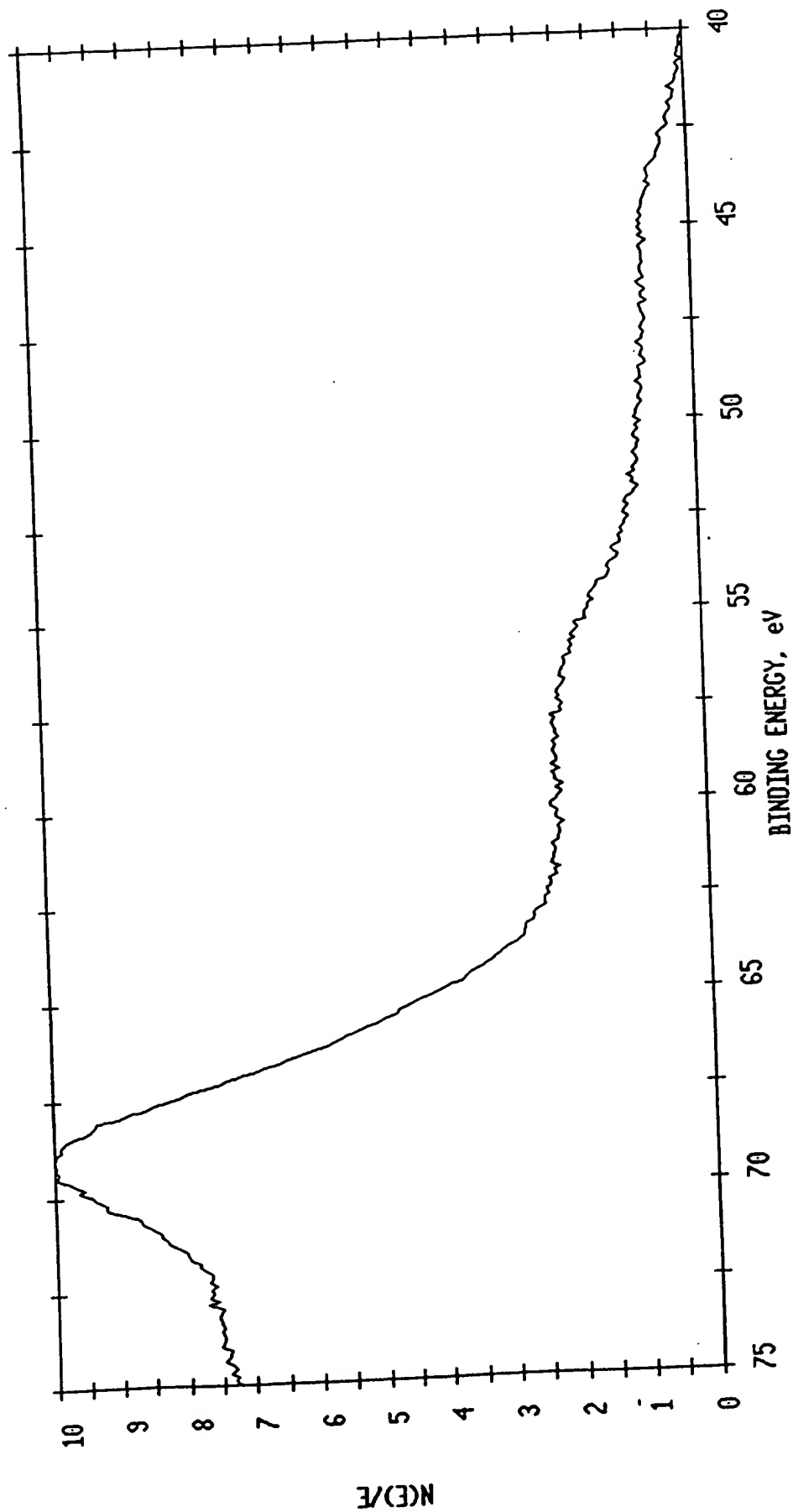


ESCA MULTIPLEX 11/22/93 EL=C1 REC 1 ANGLE= 15 deg ACQ TIME=1.67 min  
FILE: Nitest32 2nd Ni wire treated prior to IRC.  
SCALE FACTOR= 1.491 k c/s, OFFSET= 5.842 k c/s PASS ENERGY=143.050 eV Al 400 M

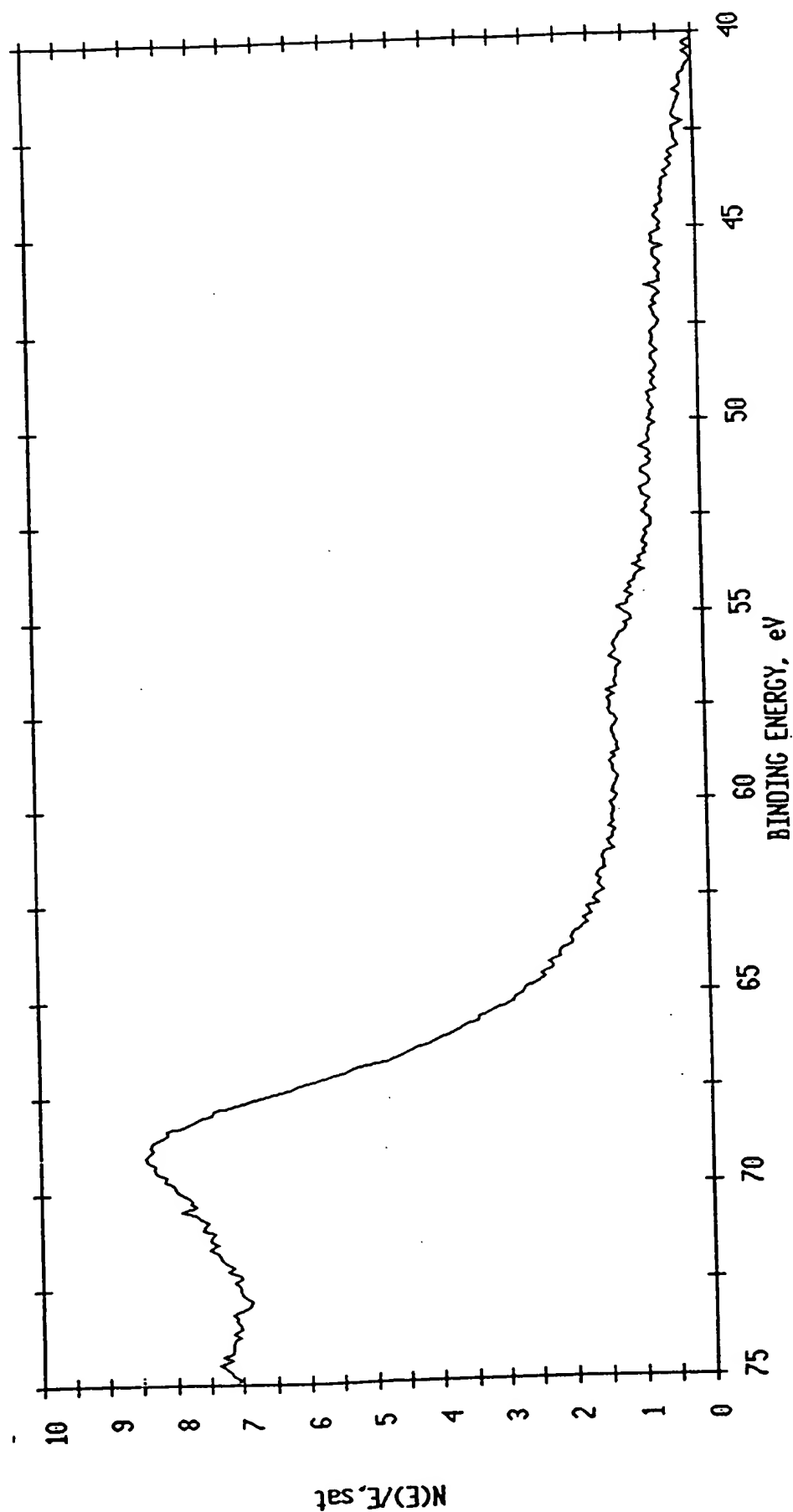




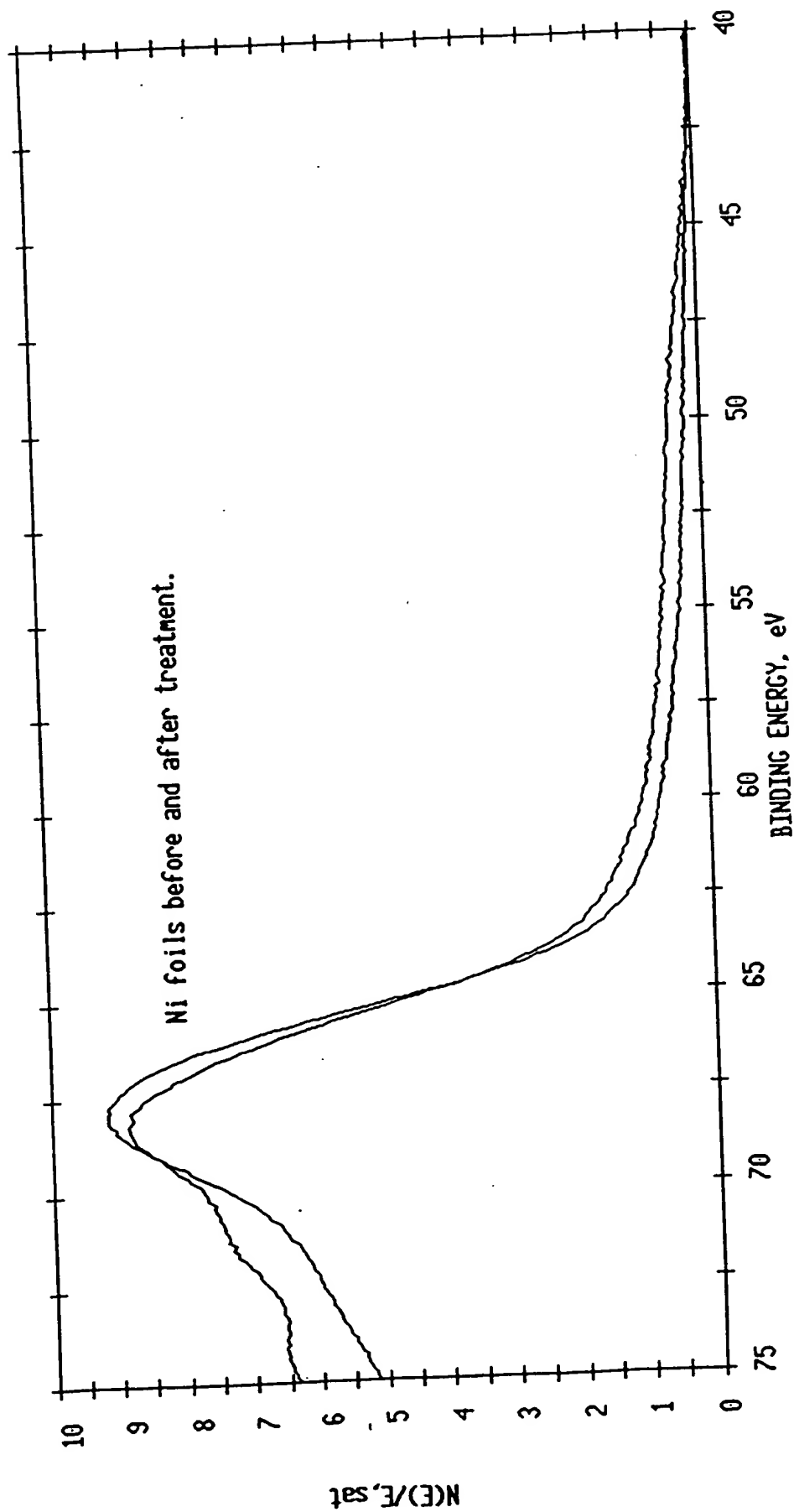
ESCA MULTIPLEX 11/22/93 EL= REG 2 ANGLE= 15 deg ACO TIME=96.53 min  
FILE: Nitest32 2nd Ni wire treated prior to IRC.  
SCALE FACTOR= 0.254 k c/s, OFFSET= 1.784 k c/s PASS ENERGY=143.050 eV Al 400 W



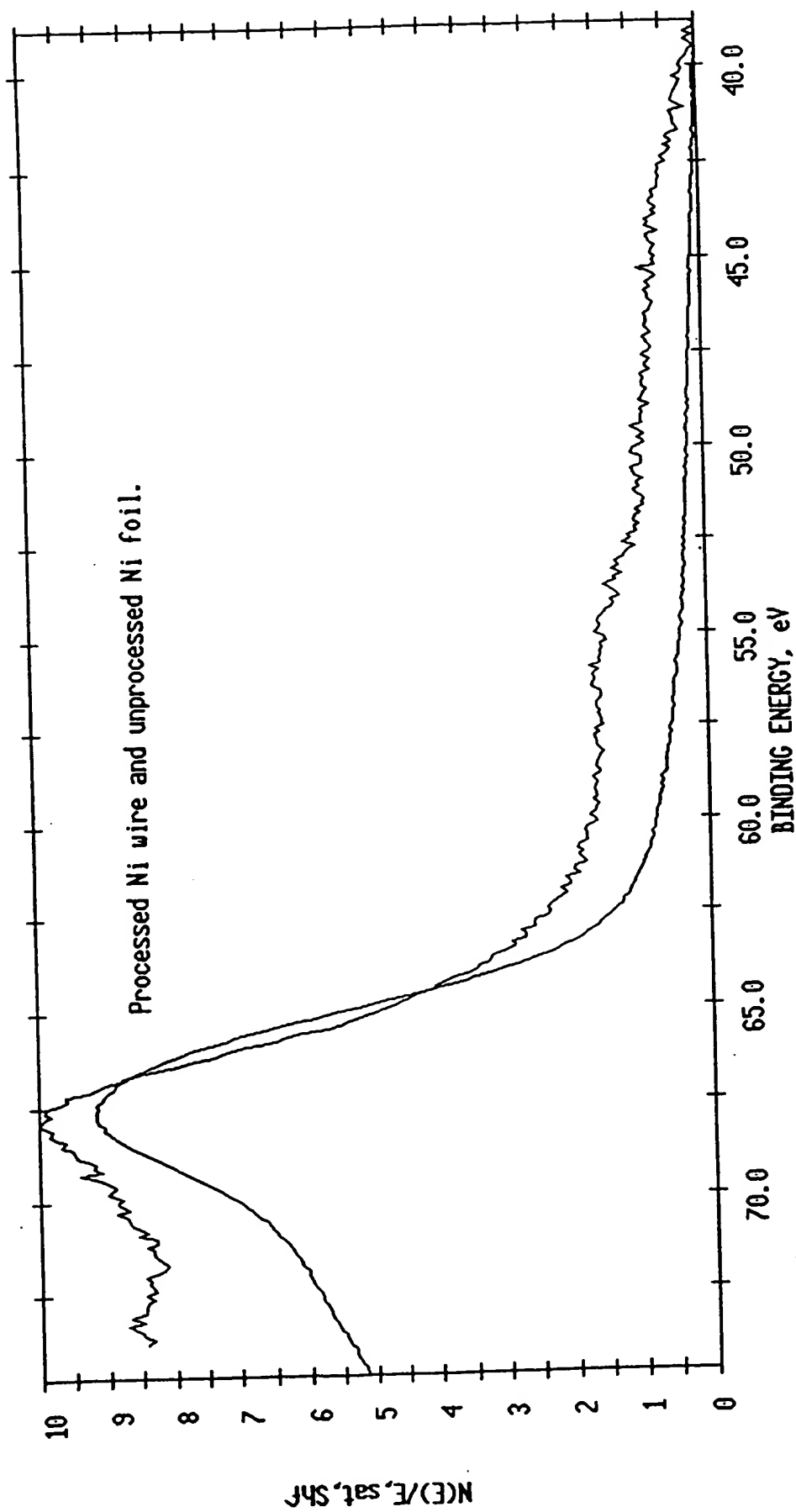
ESCA MULTIPLEX 11/18/93 EL= REG 2 ANGLE= 15 deg ACO TIME=67.28 min  
FILE: Nitest20 Ni wire processed in lab. as received.  
SCALE FACTOR= 0.331 k c/s, OFFSET= 2.436 k c/s PASS ENERGY=143.050 eV Al 400 W



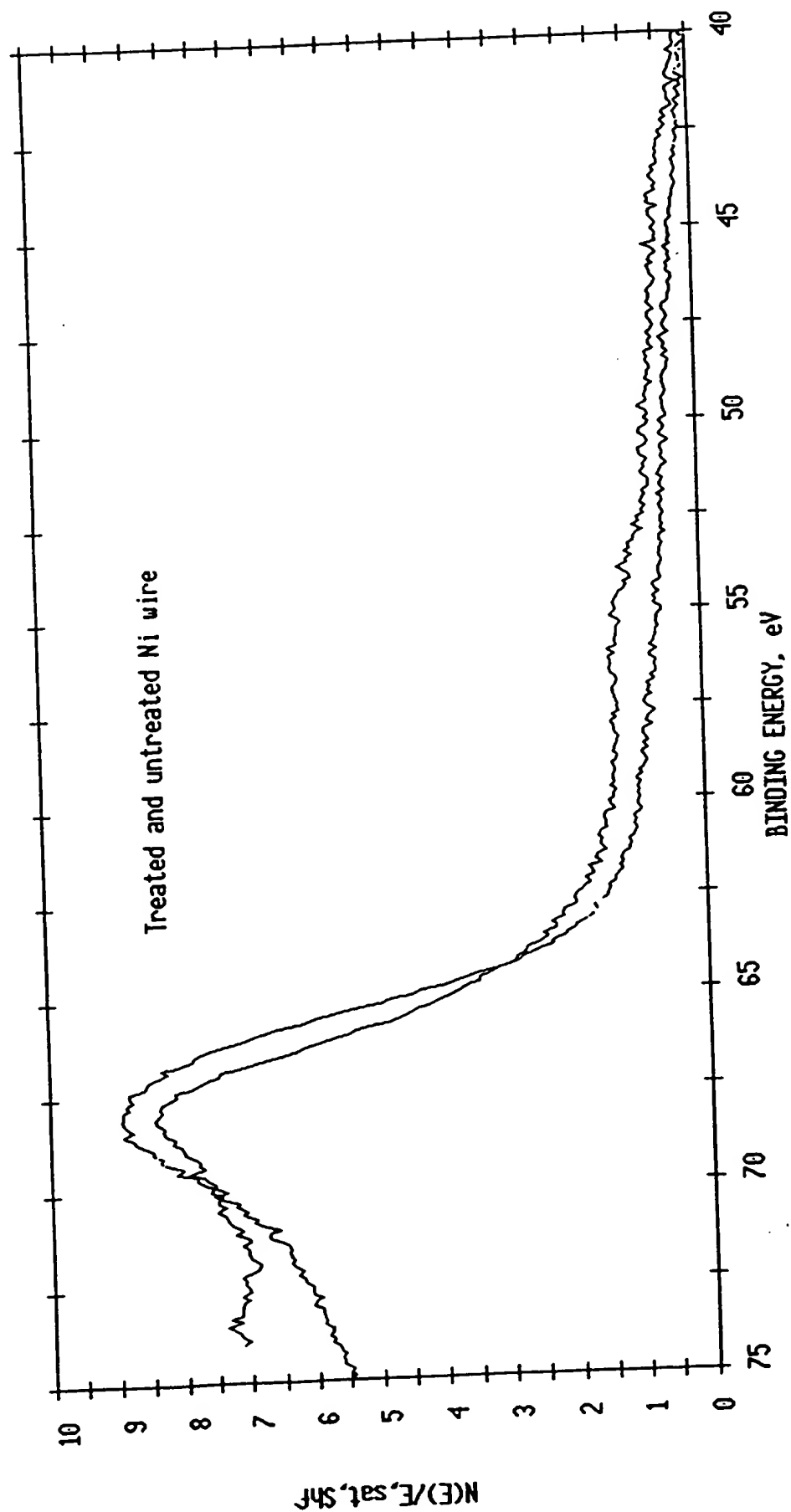
ESCA MULTIPLEX 11/19/93 EL= REG 2 ANGLE= 15 deg ACO TIME=84.83 min  
FILE: Nitest25 Ni foil treated in lab for 24 hr. As received.  
SCALE FACTOR= 1.920 k c/s, OFFSET= 8.515 k c/s PASS ENERGY=143.050 eV Al 400 W



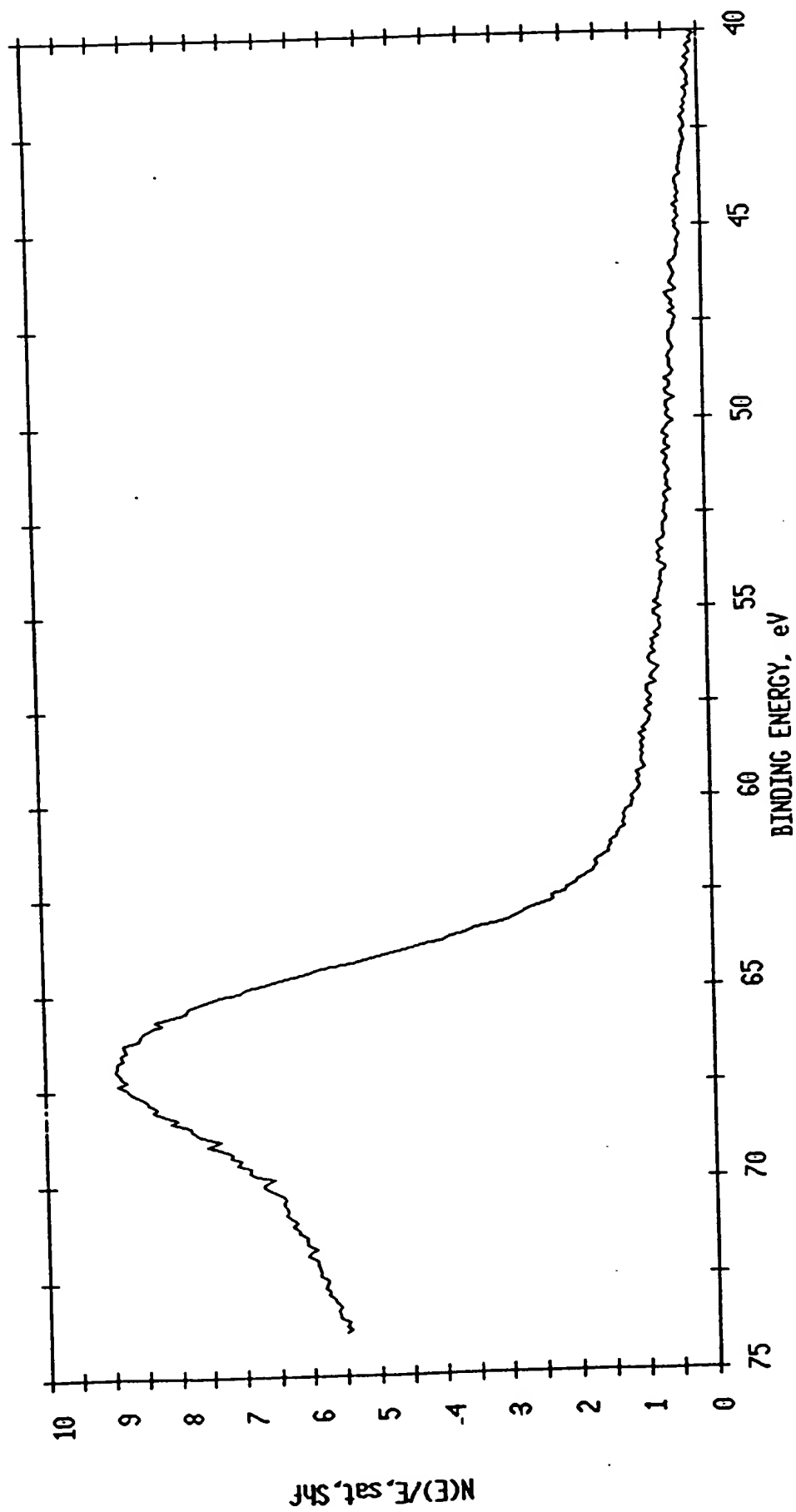
ESCA MULTIPLEX 11/18/93 EL= REG 2 ANGLE= 15 deg ACO TIME=76.05 min  
FILE: Nitest22 Ni foil untreated. as received.  
SCALE FACTOR= 3.401 k c/s, OFFSET= 9.545 k c/s PASS ENERGY=143.050 eV Al 400 W



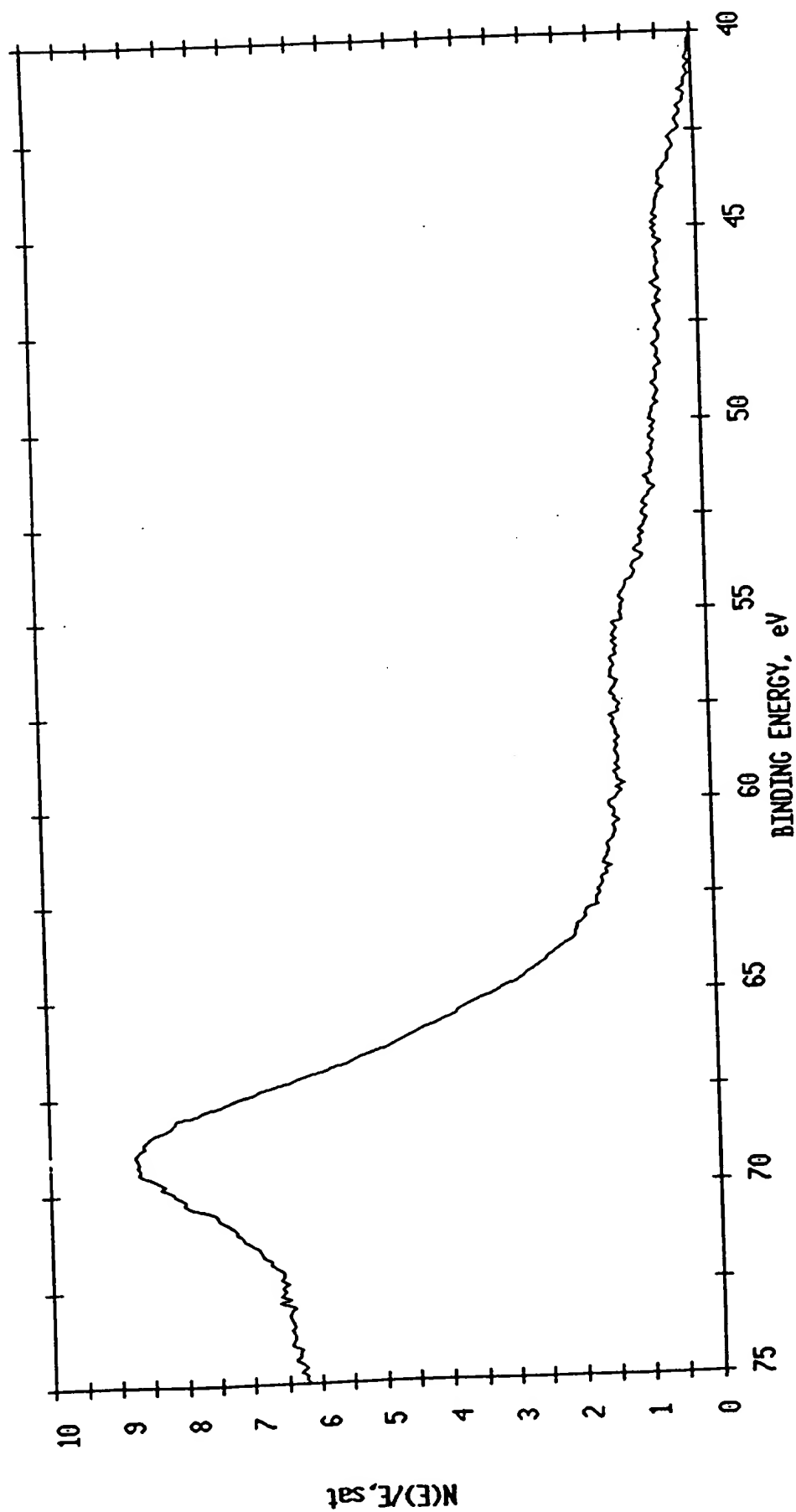
ESCA MULTIPLEX 11/18/93 EL= REG 2 ANGLE= 15 deg ACO TIME=67.28 min  
FILE: Nitest20 Ni wire processed in lab. as received.  
SCALE FACTOR= 0.331 k c/s, OFFSET= 2.436 k c/s PASS ENERGY=143.050 eV Al 400 W



ESCA MULTIPLEX 11/19/93 EL= REG 2 ANGLE= 15 deg ACQ TIME=61.43 min  
FILE: Nitest27 Ni wire untreated (base line) using Al X-Ray's.  
SCALE FACTOR= 0.326 k c/s, OFFSET= 1.491 k c/s PASS ENERGY=143.050 eV Al 400 W



ESCA MULTIPLEX 11/22/93 EL= REG 2 ANGLE= 15 deg ACO TIME=96.53 min  
FILE: Nitest32 2nd Ni wire treated prior to IRC.  
SCALE FACTOR= 0.274 k c/s, OFFSET= 1.580 k c/s PASS ENERGY=143.050 eV A1 400 W



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